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Infant Feeding.*

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THE METHODS OF INFANT FEEDING.

The subject of infant feeding has very deservedly received greater attention among pediatricians during the last fifteen years than any other subject connected with pediatrics, and it is difficult to estimate the great value of the very beneficial results following our increased knowledge in this particular department of medicine. Certainly it can be said with absolute conviction that in importance and in the satisfactory results attained, it is only excelled in recent years by the discovery and use of antitoxin in the treatment of diphtheria.

The intelligent application of the principles involved in infant feeding is of great practical significance, and is well worthy of the very serious attention of medical men.

There are four methods of infant feeding, viz.:

1. Breast, or maternal feeding.
2. Wet nursing.

*Read at the meeting of the Southern Medical Association at Birmingham, Ala., Sept. 24, 1907.

3. Mixed feeding, consisting of breast feeding, supplemented by bottle feeding.

4. Bottle, or artificial feeding.

MATERNAL FEEDING.

It is beyond question that the best food for the infant under one year of age is the milk of a healthy woman; it is the food especially adapted to the needs of the infant; breast-fed babies are healthier, more vigorous and more resistant to disease than bottle-fed infants, for while the milks of all mammals have certain characteristics in common, in that they contain fat, sugar, proteids, mineral salts and water, and while for all practical purposes, the sugars are the same, such is not the case with the fats, and especially is this true of the proteids, and herein lies one of our greatest difficulties, that of adapting the proteid of cow's milk to suit the digestive capacity of the young child.

The full-term baby has a premature stomach; time and a proper food are required for it to complete its physiological development.

The early secretion of the breast, the colostrum, acts as a stimulant to the digestive organs; this period usually lasts a week or ten days, and is gradually replaced by a milk having a fairly uniform composition during the balance of the nursing period.

The earliest secretion of the stomach is rennet and this ferment acting upon the casein, forms a flocculent precipitate, calcium paracasein, which after passing into the intestines, is digested by the pancreatic and intestinal secretions. Hydrochloric acid is soon secreted, which combines with the calcium of the paracasein clot, forming free paracasein, and a firmer curd results. This curd is now acted upon by pepsin, and true stomach digestion is inaugurated. Gradually a larger quantity of acid is secreted, and combining with the free paracasein forms a still firmer and denser clot, known as hydrochloride of paracasein, a definite compound of the proteid with acid, and which is not so easily digested as free paracasein.

The stomach thus takes upon itself more and more of the work of digestion, increasing the complexity of the products formed, the firmness of the curds and the time required for digestion, and thus eventually fitting the digestive organs for other and more complex forms of food.

The average breast milk is composed of 4 per cent. fat, 7 per cent. sugar, 1.50 per cent. proteids, 0.20 per cent. mineral salts and 87 parts of water, and though there may be some variability in these percentages, without rendering the milk unsuitable for the infant's needs, yet when the infant fails to make a weekly gain in weight, or shows persistent signs of indigestion an analysis of the milk should be made, and this information furnishes the necessary data on which to base our corrective treatment looking to the likely cause of the disturbance.

In obtaining breast milk for the purpose of analysis, the middle milk, or better still, all the milk from one breast should be secured.

For all purposes, the Babcock or Holt, method may be used in determining the fat percentage. The sugar percentage varies very little, and may be disregarded. Knowing the specific gravity and the fat percentage, an approximate estimate of the proteids may be made, or a William's Scale will indicate the proteid percentage.

An excess of fats, or proteids, often causes digestive disturbances. Regurgitation, or vomiting of an acid fluid, suggests an excess of the former, while colic and stools containing curd indicate too high proteids. An insufficiency in quantity or quality of the milk will be associated with much fussing, constipation, and either a loss in weight or a failure to make a weekly increase.

Rotch gives the following general principles for guidance in managing a disturbed lactation:

To increase the total quantity of breast milk, increase proportionately the liquids in the mother's diet, and encourage her to believe that she will be enabled to nurse her infant.

To decrease the total quantity of breast milk (which is rarely necessary), decrease proportionately the liquids in the mother's diet.

To increase the total solids (a poor milk), shorten the nursing intervals.

To decrease the total solids (too rich a milk), prolong the nursing intervals; increase the exercise; increase the proportion of liquids in the mother's diet.

To increase the fat, increase the proportion of meat in the diet, and of fats, which are in a readily digestible and assimilable form.

To decrease the fat, decrease the proportion of meat in the diet.

To increase the proteids (very rarely indicated), decrease the exercise.

To decrease the proteids, increase the exercise up to the limit of fatigue for the individual.

No sacrifice is too great, and every resource should be utilized and every effort made to nurse the young infant, and only the most serious consideration of health can justify the medical attendant in advising, and the mother in not nursing her child.

WET NURSING.

Some children will only thrive on breast milk, and in exceptional cases, it may be necessary to obtain a wet nurse. It is obvious that she should be a healthy woman and it is desirable that her own, and her foster child should be about the same age, though this is not absolutely necessary.

Many a wet nurse has been rendered unfit for her new duties by the change from a plain and substantial diet, with moderate work, to luxurious living and indolence. The reason is apparent and the necessary correction is plain.

There is another side to this problem which was expressed by a medical friend, when he said that most wet nurses were one part cow, and nine parts devil. Fortunately, wet nursing is less common than formerly, and is now largely replaced by correct artificial feeding.

MIXED FEEDING.

There are many mothers, who can for several weeks or months, partially nourish their infants, and who are therefore compelled to make use of a supplementary food, and it is desirable for several reasons, that all breast-fed babies, and particularly the wet-nurse baby, should have daily one or more feedings of modified milk, for the reason that such a method of mixed feeding allows the mothers more freedom for other duties, and gives promise of early relief from the exactions of a wet-nurse, prepares the digestive organs of the child for a gradual change from breast milk, to cow's milk preferably, and makes the weaning period easy and without discomfort.

For reasons, familiar to all present, cow's milk is the most acceptable substitute for human milk, and it is of primary importance that the cows are healthy, have a good sanitary environment, and have an abundance of clean water.

Holstein or Durham and native crosses of these breeds furnish the best milk for substitute feeding, while the Jersey is the least desirable of all. The volatile glyceride, for example, which are present in a very small proportion in human milk, are considerably greater in Jersey milk than in that of the common breed of cows, such as Holstein, and they increase decidedly the difficulty of digestion. Moreover, the fat corpuscles in Jersey milk are much larger than those of Holstein milk, and are less easily emulsified.

The mixed milk of a herd is less variable in its composition than that of a single cow, and for this reason it is to be preferred for the purpose of infant feeding.

If possible, the milk should be cooled immediately after milking, bottled and kept at a temperature not lower than 40° F. nor higher than 50° F. If this cannot be done, then during the warm summer months, the milk must be pasteurized at 155° F. for twenty minutes, and half an ounce of grape juice or orange juice should be given twice weekly to protect the infant against infantile scurvy.

The following table from Rotch, showing the comparison of woman's and cow's milk will assist in making clear why the latter must be changed or modified, in order to approximate the composition of woman's milk:

	Woman's Milk directly from the Breast.	Cow's Milk freshly Milked.
Reaction	Amphoteric (more alkaline than acid).	Amphoteric (more acid than alkaline).
Water	87 to 88 per cent.	86 to 87 per cent.
Mineral matter . .	0.20 per cent.	0.70 per cent.
Total solids . . .	13 to 12 per cent.	14 to 13 per cent.
Fats	4.00 per cent (relatively poor in volatile glycerides).	4.00 per cent (relatively rich in volatile glycerides).
Milk - sugar . . .	7.00 per cent.	4.75 per cent.
Proteids	1.50 per cent.	3.50 per cent.
Caseinogen	$\frac{1}{3}$ to $\frac{1}{2}$ of the total proteids.	2.66 per cent.
Whey-proteids. . .	$\frac{2}{3}$ to $\frac{1}{2}$ of the total proteids.	0.84 per cent.

Coagulable pro-		
teids	Small proportionally.	Large proportionally.
Coagulation of pro-		
teids by acid and		
salts	With greater diffi-	With less difficulty.
	culty. Curds small	Curds large and tena-
	and flocculent.	cious.
Coagulation of pro-		
teids by rennet.	Does not coagulate	Coagulates readily.
	readily.	
Action of gastric		
juice	Proteids precipitated	Proteids precipitated,
	but easily dissolved	but dissolves less
	in excess of the	readily.
	gastric juice.	

It is, therefore, seen that there are important differences. The mother's milk contains less solids, and considerably less mineral salts than the cow's milk, though the latter is reduced by the diluents used in the process of modifying the milk.

While both milks contain the same percentage of fats, yet they differ materially in the character of their respective fats, cow's milk being rich in the volatile fats, while the mother's milk is composed chiefly of the more easily digested and non-volatile fats of palmitin, stearin and olein. The average amount of the fat of cow's milk, which the infant can digest, varies with the age, weight and digestive capacity. Two per cent. can usually be given during the second week, and gradually increased to three per cent. by the fourth or fifth week, and the maximum of four per cent. reached by the third or fourth month. The use of rich Jersey milk not infrequently causes a fat indigestion, and is a condition not sufficiently appreciated.

The smaller percentage of lactose in cow's milk is readily adjusted by the addition of sugar or milk; the latter is not added for the purpose of sweetening the food and increasing its palatability, but for the sole purpose of furnishing the proper proportion of soluble carbohydrate necessary for the infant's nutrition. It is readily assimilated and possesses the great advantage of producing less fermentation than cane sugar; however, the latter is advised by Jacobi, and can be substituted in one-half the amount of milk sugar.

The fats and carbohydrates supply the necessary body heat and energy, while the proteids replace waste tissues and insure the proper growth and development of the infant, and it is the modification of the latter that is the most important change necessary in cow's milk, for it is the proteids which cause most of the digestive disturbance in the infant, and it differs from that of human milk, not only in the excessive quantity present, but in the relative proportions of casein and soluble, or whey proteids, that each contains. A woman's milk has twice as much of the easily digested whey proteids as of casein, while cow's milk contains about five times as much of the tough and indigestible casein as of the whey proteids.

The unassisted infant's digestion can rarely manage the large, firm curds formed by cow's milk, when coagulated by the stomach acids, and the following methods are used for the purpose of preventing or lessening in varied degrees the formation of these dense, firm curds.

1. Dilution of milk with water will reduce the proteid percentage and delay coagulation, but is only of partial benefit.

2. The addition to the milk mixture of lime water, carbonate of potash, sodium carbonate and sodium citrate will retard or inhibit the action of rennet ferment of the stomach upon the casein. These alkalies combine to some extent, with the acids of the stomach, preventing, to a greater or less degree, their forming tough curds with the paracasein, so that less digestion will be required on the part of the stomach.

3. Gruels, plain or dextrinized, act mechanically in rendering the curds porous and permeable to the action of the digestive juices. Oatmeal gruel is indicated when constipation exists; barley and rice gruel are somewhat binding.

The minimum starch percentage, which favors digestion, is obtained by adding one teaspoonful of barley flour to one pint of water and boiling for twenty minutes. Add sufficient water to make one pint. This contains 0.75 starch. A most useful and practiced method of modifying the proteids of cow's milk is that of partial pancreatization, and is as follows: Dissolve one of Fairchild's peptonized tubes in eight ounces of boiled water and add from half an ounce to one ounce of this solution (according to the percentage of the proteids in the mixture) to each bottle, about fifteen minutes before each feeding, and heat to 100°

F. It is not intended to continue this plan indefinitely, but as the infant's digestive functions become better established, a less amount of the pancreatin solution is added to each bottle, and the time of peptonization is decreased. Another and a more recent method of dealing with the proteids, and highly endorsed by Rotch, is by the addition of whey in prescribed amounts to the milk mixture. Whey has a formula of fats 0, sugar 5 per cent., caseinogen 0, and lactalbumin 0.90 per cent, and we can readily see the great advantage this method offers in prescribing definite percentages of the split proteids, when combined with milk or cream, and it is the only method which enables us to approximate the split proteid percentage of the mother's milk, and it possesses the further advantage that by gradually increasing the milk in the mixture, and proportionately decreasing the amount of whey, we can by degrees, educate the infant's stomach to tolerate and digest all of the proteids of cow's milk. Personal observation of about 200 infants fed after this manner, impresses me with the value of this method.

CONDENSED MILK.

Owing in part, to climatic conditions, condensed milk is a very popular baby food amongst our people. It is practically sterile, is cheap and easily prepared; a mixture of one part of the Eagle Brand condensed milk and nine parts of water contains 0.88 fats, 5.2 per cent. sugar and 0.93 proteids. When cereal gruels are used as diluents instead of water, the food value is correspondingly increased. To compensate for the cow fats, Kerley gives Cod Liver Oil to these infants.

Many of these babies, fed on condensed milk, are plump and apparently in good health, yet it is a matter of general observation that they lack stamina, and succumb readily to disease. Condensed milk should be used for temporary purposes only, and not as a permanent diet.

THE PREPARED FOODS.

The prepared foods may be grouped in three classes:

1. The farinaceous foods: Consisting almost entirely of cereal flour in the form of unchanged starch. Their fat and proteid percentages are extremely low. Imperial Granum and Ridge's Food are of this group.
2. The malted foods, which are obtained by the action of malt on cereals, and contain a large percentage of the soluble carbohydrates.

When mixed with milk or cream, they frequently serve a good purpose, and are the least objectionable of all the prepared foods. Examples here are Mellin's Food and Horlick's Malted Milk.

3. The evaporated and dessicated milks, to which a cereal flour, sometimes partially dextrinized, has been added.

Nestle's Food is perhaps the best known of this group.

The prolonged use of these foods not infrequently produces disorders of nutrition, most often scurvy.

The prepared foods should be used for two distinct purposes, viz.: Because of their low fats and proteids, they are serviceable in tiding over periods of digestive derangements, and secondly, the farinaceous and malted groups, at times, serve a useful purpose in modifying cow's milk.

PERCENTAGE METHOD OF MODIFYING COW'S MILK.

This is known abroad as the American method, and constitutes the greatest advance made in recent years in infant feeding. It consists of using a cream of known fat percentage, whole or fat free milk, milk sugar and a diluent of such definite proportions that we can prescribe any desired combination of these ingredients indicated by the age, or the individual variability in the digestive capacity of the child; it often solves the difficult feeding problem and is infinitely better for the infant than any other food, or method of modifying a food, except it be the breast milk, and in some exceptional cases, it is even superior to mother's milk. Almost every author of a work on pediatrics has his own percentage method; some are more practical and are more readily acquired than others, though all have the same underlying principles. The matter of greater importance is that the physician shall think in percentages and shall make himself thoroughly familiar with some one method and apply it.

I shall present briefly three methods of modifying cow's milk. Their application must, in a great measure, be governed by the infant's needs and the mental qualifications of the nurse or mother.

DILUTION OF COW'S MILK.

The earliest attempts in the modification of cow's milk was by the addition of water to milk in varying proportions. It is still used in many climes; not that it represents the best, but that it is easy to un-

derstand and mothers can be made to comprehend the simple problem of adding prescribed quantities of milk boiled, or barley water and sugar.

Assuming that average cow's milk contains fat 4.00, sugar 4.50 and proteid 3.50, and using one-tenth as the unit of dilution, it will be seen that a mixture of one part of milk and nine parts of diluent will give a percentage of 0.40 fat, 0.45 sugar and 0.35 proteid. Two parts of milk and eight parts of diluent will give double these percentages. Three parts of milk and seven parts of diluent will treble the percentage and so on. Much can be said in favor of such a plan, and many babies do well on this modification. They must not be kept on any one percentage too long, but from time to time substitute an additional diet of milk for an equal quantity of diluent, so that the normal infant may be on whole milk at the age of ten months.

In these mixtures, the sugars are low and the addition of a slightly rounded tablespoonful of milk sugar to each twenty ounces of mixture will increase the sugar 2 per cent.

MATERNA OR DEMING GRADUATES.

The next method to be mentioned for the home modification of milk is that by means of the materna or deming graduates. These devices are pint measuring glasses with panels of columns of figures representing different feeding periods to one year of age, and indicating the percentage of ingredients when filled to certain lines. They are inexpensive, practical and easily understood by the average mother, and their more general use is earnestly advised. They work a step in advance of the simple dilution of whole milk and may be considered evolutionary in the percentage method, in that they may lead to a more elastic and more exact method of varying the proportions of the ingredients in the modifications of milk, and to such I now invite your attention.

METHOD OF CALCULATING PERCENTAGE.

In these we use a gravity cream, fat free milk, lactose, lime water and diluents. To top six ounces from a quart of milk, after standing eight hours, is used and will have a formula of fats 16.00, sugar 4.50, ~~proteids~~ 3.60, while that of fat free milk is fat 0.00, sugar 4.50, proteids 3.60.

These percentages are not absolutely correct, but are sufficiently so for practical purposes.

The rule is that the desired percentage or quantity is to the known percentage or quantity, as x is to the known percentage or quantity.

To illustrate we wish to order a 4.00, 7.00, 1.50 mixture six feedings of eight ounces each (48 oz) with 5 per cent lime water and boiled water as a diluent.

To obtain the amount of 16 per cent cream required:

$$4:16::x:48$$

$$x=12 \text{ oz}$$

To obtain proteids percentage in 16 per cent cream:

$$4:16::x:3.60$$

$$x=.90 \text{ of proteids}$$

To obtain balance of proteids:

$$1.50-.90=.60 \text{ desired}$$

$$.60:3.60::x:48$$

$$x=8 \text{ oz fat free milk}$$

To obtain sugar percentage in 12 oz of cream and 8 oz milk (20 oz)

$$20 \text{ oz}:48 \text{ oz}::x:4.50$$

$$x=1.87 \frac{1}{2} \text{ per cent., say 2 per cent.}$$

To obtain balance of sugar:

$$7 \text{ per cent.}-2 \text{ per cent.}: 5 \text{ per cent desired}$$

$$5 \text{ per cent.}: 100::x:48$$

$$x=2 \frac{2}{3} \text{ oz. and two tablespoonsful of milk sugar to the oz. equals five tablespoonsful desired.}$$

	F	S	P
12 oz. of cream	4.00		0.90
8 oz. of fat free milk.....	.00	2.00	0.60
5 tablespoonsful of milk sugar..	...	5.00	
	4.00	7.00	1.50

$$2 \frac{1}{2} \text{ oz. of lime water :5 per cent.}$$

$$25 \frac{1}{2} \text{ oz. boiled water}$$

$$48 \text{ oz. quantity desired}$$

Having learned the necessary quantities needed to make this mixture the following printed slip is filled out for the mother's guidance:

Let quarts of milk stand hours. Dip off the top ounces from each quart for cream. Use a chapin dipper.

Mix as follows:

Cream	 ounces
Skimmed milk	 ounces
Lime water	 ounces
Boiled water	 ounces
Milk sugar	 tablespoons

Heat to Keep on ice Give baby ounces every hours during day, and feedings at night

The method of varying the food ingredients at will and adapting them to the constantly changing needs of the growing infants the desideratum in artificial feeding of infants.

It is accurate and yet flexible; it enables the physician to adapt food to the individual peculiarities of the infant's digestion instead of attempting to make the baby suit the food. It is scientific and is grounded on good theory and is equally good practice.

It is no longer experimental, but has grown into an article of faith with the pediatrician.

The Curability of Epilepsy.*

By William P. Spratling, M. D.

Medical Superintendent of the Craig Colony for Epileptics, Sonyea, New York; Member of the New York Academy of Medicine; Member of the American Neurological Association; Member of the American Medico-Psychological Association, etc.

There is a marked difference of opinion among neurologists concerning the curability of epilepsy. Some regard it as incurable, others curable in 2 per cent. to 3 per cent. of the cases only, while a few (Turner, Ritter, Church and Peterson, Spratling, W. P.) claim that 7 per cent. to 10 per cent. are susceptible to cure when treated early enough and the treatment kept up as long as it should be.

*Read before the Clinical Club of Buffalo, N. Y. April, 15, 1907.

Aside from its clinical manifestations we do not yet generically know what epilepsy is. We can define it as well as we can define insanity; we can even give it a definition that the most eminent jurists may have difficulty in picking flaws in. But when it comes to describing the essential lesion, the cause *a priori* we are still groping in etiologic darkness. In some cases we have caught a glimmer of light; in others still we can even work for the good of the patient by a good light; and as a result of work based upon a knowledge of fragments of etiology we can in some cases effect a lasting cure, and in others a long arrest of the seizures that is as satisfactory as a cure. No case of true epilepsy can be cured under years—just how many cannot now be stated. Science is not yet ready to take a stand on this point. But in the larger number of cases—whether the lesion be chemic, bacteriologic, organic or pathologic only—we are searching for hidden causes without anything to guide us beyond certain diversified aura. The reason physicians differ regarding the curability of epilepsy is because of the *radical inexactness of our knowledge of the real causes* of the disease in the vast majority of cases.

A POINT THAT WILL HELP.

A distinct tendency that had its origin at the Craig Colony has come to the front in late years—and that is to regard the essential lesion in epilepsy as more chemic in nature than it is pathologic when the word “pathologic” is used in its ordinary sense. A chemic cause may be pathologic even when it is confined to a single cell, but the difficulty lies in our instruments of investigation and precision which should enable us to isolate such a cause. Just here there is still a missing link which in my opinion will be found in the chemical laboratory and not in the dead house.

The manner in which the study of living tissues and secretions will help elucidate the problem of epilepsy in contradistinction to studies of the grosser tissues in the dead house only, will be from the chemic side—from the side of nutrition—the all important side of metabolism—of cell life in its most delicate, intimate and vital phases. We are apt to forget that a cell is a body complete whose component parts cannot yet be successfully studied by present methods of investigation, and that the higher nervous tissue cells may harbor the most virulent toxins we are now wholly unable to isolate, to account for, and most important of all to destroy.

During the past twenty years I have studied some four thousand cases of epilepsy and witnessed many thousand attacks. The cause of the attack in many cases could be at once set down as being due to an organic cause of the grosser kind. It may have been a cerebral palsy, a tumor, or brain trauma, or syphilitic brain infection, or some other definite thing of that kind. In others the disease followed injuries received at the moment of birth, such as asphyxia and the use of forceps. In others it followed in well predisposed subjects—and I would emphasize the word “predisposed”—the irruption of a tooth at the first dentition (the convulsions at first being *epileptoid* or *epileptiform only* in character), but if the soil is suitable and should the irritation not be soon relieved, the attacks may pass into a type of true habit or organic epilepsy due to a cerebral hemorrhage, the hemorrhage being caused by the severity of a simple though severe epileptiform seizure at the outset. Thus an absolutely non-perpetuating fit at the outset may by its own disastrous results establish a type of epilepsy that never can be cured.

Jacobi says, “Every convulsion, ever so slight, may produce cerebral hemorrhage, with all its results—idiocy, imbecility, insanity, and the like.” So let us not forget that a tooth at the first dentition may cause an epileptiform seizure, which in time may produce cerebral palsy as the result of a hemorrhage in the brain.

In other cases a *latent* tendency to convulsions may not appear until the second dentition, or convulsions may be excited into existence by one of the infectious fevers common to childhood at this period. Scarlatinal nephritis is especially apt to be followed by convulsions. Puberty in both sexes is an epoch full of epileptic possibilities for persons of feeble neurotic constitutions. Barring the first year of life more epilepsies originate during the years in which occur the epoch of puberty than at any other time. After the 17th to the 18th years true epilepsy is rare, but it does occur and partakes of various types. After the 20th year it is generally due in males to brain trauma, to brain syphilis, or to whisky. In women after the same year it is generally due to puerperal infection, to kidney diseases and occasionally to a deep-seated toxæmia, more simply designated as “food-poisoning.” This latter cause is less frequent in women than in men. Up to the 20th year as many females as males suffer from epilepsy. After twenty for every

eighty epileptic women there are one hundred epileptic men. This statement is based upon more than 67,000 cases of epilepsy statistically studied in this country and in Europe and running back to 1853—or over a period of 54 years. (1)

We see from the foregoing that the wide range of the grosser causes that produce an actual change in tissue and that is demonstrable to the naked eye may alone confuse as to the cure. One physician may think when an epileptiform seizure is cured that the genuine disease has been cured. Another may cure the true disease and call the attacks epileptiform. Much depends upon the personal equation which must constantly vary.

POINTS OF PROGNOSTIC VALUE.

Epileptic patients who come to you for treatment first ask a question like this: "Doctor, can I be cured?" Every parent who brings an epileptic child to you for treatment will be sure to ask, "Doctor, will my child get well?" In order to give an intelligent answer to such questions we may have knowledge of certain factors that constitute very good guides to prognosis. The first one is:

THE MENTAL CONDITION.

A cerebral palsy epilepsy that began in childhood may be accompanied by no mental impairment whatever as a result of the most incessant attacks which in such cases are *essentially motor* in character. The psychic life is disturbed the least in such attacks and frequently it is scarcely disturbed at all. Such causes alone give rise to "Jacksonian" epilepsy. But the child will be of backward mental development due to *lack of opportunity* to learn and not so much to the effects of the disease. The fact that the attacks spring from a gross organic lesion makes an unfavorable prognosis as to cure the only one we can give in such cases. But we can always say, "The child has a very fair degree of mentality. It may always have as good a mind as it has now even though the attacks should keep up, and its mental condition may even improve as natural development aided by education proceeds."

To remove the damaged brain area in such cases would be the work of an experimentalist. The resultant scar would be greater than the old injury. Cure in such cases would be further off than ever.

(1) "Epilepsy and Its Treatment," by the Author, 1904.

But the surgeon comes now to play a part and he may do much to relieve deformities of the hand, arm, leg or foot or of several such members combined. I regret—as every epileptologist must—that this is a special field that surgeons generally have done too little in the past to relieve, though some surgeons are taking it up. But he may not have been informed—the family physician may have kept to himself the fact of the incipient palsy. So while the infantile palsy cases that make up 8 per cent. to 9 per cent. of the total number are as a rule not curable, surgical measures conservatively applied may not infrequently bring about great physical and some mental relief. Postponed good may follow such work—good that does not become pronounced until years after the operation. Many cases of the kind have come under my observation.

EARLY SURGERY IN SUCH CASES.

When a hemorrhage of the brain occurs in infancy it usually does so during the first three months of life. Up to within a very few years ago surgery had made no effort to prevent the permanent palsy that is bound to follow in such cases by removing the clot that caused the palsy. Cushing and others have of late done much praise-worthy work for the relief of cases of this kind. (1) I believe that surgery possesses a great field of usefulness in the *prevention* of organic epileptiform seizures through the removal of the clot that occurs in infantile palsy cases during the first year of life.

The only discouraging feature about such work is that the blood of the infant during the first six or eight weeks or so of life does not readily coagulate, and when a hemorrhage starts it is apt to keep up to a disastrous point, and to open up the brain after the hemorrhage has apparently ceased is apt to cause a renewal of the bleeding. Special attention has often been called to this fact by Jacobi.

CURABILITY OF CASES DUE TO ERRORS IN METABOLISM.

I spoke a moment ago of “food-poisoning” as a cause of epileptic convulsions. I meant the statement literally, for I believe it to be

(1) See article on “Surgical intervention for the ultra-cranial hemorrhages in the new born,” by Cushing, *Am. Journal of the Med. Sciences*, Oct., 1905; and article along same line by same author, *Johns Hopkins Bulletin*, March, 1905.

true. I have had under my care fully a score of epileptics whose attacks appeared only after gross over-indulgence in food of an improper kind. It could be called epilepsy from "gluttony," which among epileptics is common.

Epilepsy due to "food-poisoning" is generally curable. The real cause is a toxæmic state that is functional in character—that comes and goes, that is never organic to any greater extent than a brain cell, distinctly organic and convulsing itself—so to speak—to rid the higher nervous tissues of an irritant, can be organic.

I also spoke a moment ago about the value of aura in aiding us to make a prognosis. The aura in cases of epilepsy due to errors in metabolism is sharp, clear cut and distinct and unlike the aura in any other type of the disease. It falls strictly within the type of cases described by Haig in his work on uric acid diathesis. Such patients usually have attacks of the most violent kind, and they are not infrequently serial—one attack following another for several hours or days until a score or more have occurred. Sometimes they become extenuated as they proceed, become less and less violent, until they die out altogether because the virus has been neutralized or destroyed. But the attacks have saved the patient from insanity—step by step the poison has been destroyed.

It seems to be an invariable rule that the aura in these cases begins with an almost imperceptible change in the patient's conduct. He grows loquacious; his face is slightly flushed; his eyes unusually bright. He seems to be under the stress of some excitement. Later this condition begins to lessen and the patient becomes irritable, fault-finding, disagreeable to those about him, desires to be alone, complains of lack of desire for food, has a bad taste in his mouth, a heavily coated tongue, foetid breath, is constipated, headache more marked. At the end of two or three days as a rule—although in some cases this condition may last a week before reaching its climax—the first seizure occurs and may be followed by a score or more. The aura in such cases is "psychic"—mentality is affected before motion.

Such epilepsy is far more common in men than in women and occurs between the ages of 38 and 50 years. It is prone to occur in men of sedentary habits who drink heavily and eat rich food at unseasonable hours, such as lobster salad and welsh rarebit. 90 per cent

to 95 per cent. of these cases can be cured if taken in time, and if the patient is willing to submit to a somewhat restrictive treatment for two years or so. As a rule they are difficult to treat, for we must destroy the desire for liquor while we are teaching hygienic living. Drugs in these cases play a secondary part. Yet they are essential to overcome certain conditions. Right living is the only lasting cure.

THE INFLUENCE OF THE NUMBER OF ATTACKS ON PROGNOSIS.

As a general proposition the less frequent the attacks the better preserved will be the mental condition of the patient and the greater the likelihood of cure. But there are notable exceptions to this. In many Grand Mal cases the number of attacks may have no relationship whatever to curability.

We know positively that psychic attacks are less frequently cured than any other, and that they occur more frequently in the same individual than any other. I have known psychic seizures to occur by the hundred in 24 hours, only a few seconds intervening between each attack. They generally soon destroy the mind and the prognosis is extremely unfavorable. A girl of six years came under my care 10 years ago suffering from 60 to 70 such attacks daily in 12 hours. Six years later she was having not more than 12 to 15 a month, and still later not more than six or eight every three months. Mental and physical development proceeded naturally, and she bids fair to be free from the disease entirely by the time she is 18 or 20 years old.

Petit Mal is more frequently curable than Grand Mal. Idiopathic epilepsy is more frequently curable—or at least long arrests of the seizures are more often secured—than cases of epilepsy due to a gross organic lesion.

Jacksonian epilepsy is usually curable when the attack remains local to the end and proper surgical measures are invoked.

THE INFLUENCE OF SEX, AGE AND HEREDITY ON PROGNOSIS.

Sex has no influence on the prognosis in epilepsy. Nor has age much to do with it. In making this statement I do not fail to exclude cases of simple convulsions in early life due to discoverable excitants and which could not be called true epilepsy. Heredity should apparently give an unfavorable prognosis, but as a matter of fact it has been recog-

nized by the best writers on the disease that those who have it largely because of a bad heredity, can often be treated with as good results as cases in which there is no heredity. The explanation of such success is found in the fact that the patient being aware that he is *liable to convulsions* is more likely to respect such a tendency and so escapes frequent attacks.

OPINIONS OF PROMINENT WRITERS AND AUTHORITIES.

"If it attacks little children the greater number die. If youth and young adults, recovery may take place, but there is danger of its becoming habitual and even increasing if not treated by suitable remedies. Such also is the case when it attacks children. When it attacks people of advanced years it often proves fatal. When a person has passed the twentieth year of his life the disease is not apt to seize him unless it has become habitual from childhood. When the disease has prevailed for a length of time it is no longer curable." (Hippocrates.)

It is extraordinary how well the foregoing statement coincides with the facts as known today. "When a person has passed the twentieth year of his life the disease is not apt to seize him" is precisely what we know today. In studying closely more than 2,300 cases admitted to the Craig Colony for epileptics during the past twelve years, we have found that close on to eighty-five per cent. of all cases begin before the twentieth year. "When the disease has prevailed for a length of time it is no longer curable" is a statement to which we must take exception for the reason that the treatment of epilepsy more than 2,200 years ago was so radically different from what it is today. The length of time the disease has existed has but little bearing on the prognosis in selected cases of which the following is an illustration:

V. S. was admitted to the Craig Colony in 1896. He had been epileptic for eighteen years; had been a patient in the State Hospital at Utica and was discharged from there as "hopelessly incurable." Later he was a patient at the St. Lawrence State Hospital at Ogdensburg, and after some months he was likewise discharged from there as hopelessly incurable. The records of both hospitals show that he had while in them an average of 13 to 15 seizures a day. A conservative estimate demonstrates that he had not less than 50,000 to 60,000 seizures prior to his admission to the Colony. The first month at Sonyea he had 128 at-

tacks; the second month, 110 attacks; the third month, 3; the fourth, none; the fifth, 1; and after that and during a period of two years he had no attacks whatever. In the meantime he had learned the trade of printer. We discharged him and he went to work in a printing office. He has now been absent from the Colony nearly nine years and has not had an attack in all that time.

Dr. Jas. J. Putnam, of Boston: My opinion on the curability of epilepsy is about as follows: Unless it be asserted that the proof is made complete only by the patient's death, I should say without question, from my own experience, that the disease can be cured. I could not give the percentage of cures in my own practice without a long and careful investigation. I suppose it might be asserted with reasonable confidence as a theoretical proposition, that even an apparently cured epileptic has a nervous system which is somewhat different as regards the liability to epileptic seizures, from that of any other persons, and in this sense perhaps, he can never be regarded as completely cured. On the other hand, everyone is, I presume, in some danger of having attacks if the provocation be sufficient.

Dr. Morton Prince, of Boston: The curability of epilepsy depends after all very much upon what we agree to call epilepsy. In the absence of all definite knowledge of its pathology it is only a clinical syndrome which, as I regard the matter, may be the manifestation of a variety of conditions. Some of these underlying conditions are curable and others are not. When, for instance, recurrent convulsions are due to certain forms of organic brain disease they certainly are not curable; while, when they are due, as I believe the evidence shows they sometimes are, to functional irritations they may be curable.

Dr. Charles L. Dana, New York City: I am very sure that a small number of epileptics get completely well. I have not definite statistics of my own cases, because it is so difficult to follow them up for three or four years, but I feel sure that the usual figure—somewhere about 5 per cent.—is about correct. I think that the number of cases which get restored to comparative health, so that they can do their work in life, is indeed very considerable. If we base our percentage, as we should, only upon the cases that are suitable for treatment, and leave out the imbeciles, hemiplegies and degenerates, I think the percentage of controlled cases would be very satisfactory.

Dr. William Aldren Turner, of London, places the percentage of cures in epilepsy at 10 to 12; and claims that no case should be regarded as cured until the attacks have been arrested for nine years.

There are now at the Craig Colony for Epileptics at Sonyea 1,080 epileptics. 500 of them are incurable because they are grossly organic or because they are epileptic idiots, imbeciles, markedly feeble-minded or demented. Of the remaining 580, 98 1-2 per cent. of them were of more than a year's standing when admitted—leaving only 1 1-2 per cent. as recent or acute and more likely to be cured. Four years ago when we had fewer of the hopeless class and more of the better classes, I stated in "Epilepsy and Its Treatment" that 5 per cent. of the mixed classes, acute and chronic, could be cured.

When a better classification is in use years hence—when earlier admission to places for treatment where the individual can be closely supervised in every respect; when laboratory studies shall have elucidated certain problems now veiled in obscurity—I believe that 25 per cent. to 30 per cent. of all cases of epilepsy will be cured. Who would have been so bold twenty-five years ago as to state that in the year 1907 25 per cent. to 30 per cent. of all cases, and more than 60 per cent. of the incipient cases of tuberculosis could be cured under conditions of treatment that places the patient constantly under the physician's control? Epilepsy is not a disease for office treatment alone. Beyond that lies an arbitrary system which is simple enough when once understood that I venture to predict will be common in this country 25 years from today. Like the tubercular individual the epileptic must plan his life not only to get well but to stay well.

Tuberculosis of the Bladder, With a Case-Report.*

By A. F. Toole, M. D.,

Birmingham, Ala.

Although conscious of the very reasonable doubt which may exist in your minds as to whether one is warranted in serving out to you a rehash from the existing knowledge as to this affection, I feel that the accompanying history of a case may add enough live interest to the paper to relieve in some degree its text-book style.

*Read before the Jefferson County Medical Society.

Moreover, our familiarity with the occurrence and nature of vesical tuberculosis is perhaps out of proportion to its actual frequency, and every apparent case merits some attention, if only by noting where it is at variance with the more usual symptom-complex.

In reviewing the available literature, it is soon noted that considerably more regard than usual is allotted to those facts and theories which pertain to pathology, or pathogenesis, or etiology; somewhat less to symptomatology and diagnosis, while treatment is perforce given rather scant space. It might also be noted that the consideration of the subject in more than one well-known genito-urinary work, even though necessarily brief, seems badly slighted and below the standard of the other subject-matter.

Tuberculosis of the bladder is by no means frequent, if we take as our guide the more usually accepted dicta for diagnosis; although its occurrence becomes much increased should we accept as tuberculous those cases which satisfy the less rigid demands of some observers. Such statistics as are gathered from general autopsy would evidently throw no light upon its ratio to the living victims of tuberculosis. It is, with very few exceptions recorded, always secondary to some other urogenital involvement, which latter can quite often be traced from a still earlier invasion of the body. The urogenital focus may be in the kidney, epididymis, prostate, or seminal vesicles, and their relative frequency as fore-runners of the bladder infection seems to be in the order named. To them, the tubercle bacilli must come through the blood or lymph, but from them to the bladder the mode of infection is by germ-laden urine from above or by contiguity and extension from below; although the very free distribution of lymphatics to the genital organs and the base of the bladder would seem to render metastatic infection quite possible.

As a predisposing cause, trauma of some kind must be given first rank; experimentally, a breach of epithelial covering must always precede the implantation of the tubercle bacilli, as when contained in urine from a diseased kidney. Such trauma may undoubtedly come from a gonorrhoeal invasion, although it would be hard to prove more than a mere coincidence. Gonorrhoea, however, is certainly to be considered in relation to tuberculosis of the prostate or epididymis, and therefore is under double suspicion.

The pathological course of the disease has been roughly divided into, first, the formation of tubercles; next, the appearance therefrom of ulcers; third, a still deeper invasion, or infiltration, affecting the muscular elements of the wall; and finally, perhaps, sloughing, sacculation, or a rare perforation. The average case as seen clinically would show on autopsy some ulceration and infiltration. Casper and Lydston hold to the rather common occurrence of a very superficial process, to be termed a "tuberculous cystitis." Healing, even of ulcers, has happened and has been watched, but post-mortem findings of healed lesions are very seldom noted. Mixed infections occur often, and especially after even careful instrumentation and local treatment. In the early stages the gonococcus may be present; later, the colon bacillus, members of the proteus group, or a streptococcus or staphylococcus. The latter seem to forward the destructive process, while this may be inhibited somewhat by the proteus organisms; but such beliefs are not any too firmly founded.

In symptomatology, we find a striking agreement among writers as to the general symptom-complex, qualified nevertheless by statements that they are "in no wise characteristic," that "there is no one sign or symptom, nor is there a definite symptom-complex;" that the "symptoms are sometimes quite characteristic, but the final diagnosis rests on the finding of tubercle bacilli in the urine." This last demand is by no means considered absolute, however, nor is their discovery thought essential to a diagnosis. History, symptoms, and clinical course may suffice entirely in many cases to stamp the nature of the trouble as tuberculous.

The symptoms nearly always in evidence are: increased frequency of micturition, pain, blood in the urine, and pus in the urine. These, being symptoms merely of a severe cystitis, vary or are even absent according to the localization and pathological stage of the lesions. In the case reported below, blood has not been noted since the case has been under observation, yet its absence does not preclude the diagnosis. The finding of tubercle bacilli would do away with reliance on less positive symptoms, but unfortunately their number is usually small; a very careful search will often serve to detect them, although cases are seen in which they are never found. Inoculation of a susceptible animal, such as the guinea pig, with the suspected sediment, may indirectly prove their presence. When in urine, constantly purulent, no organisms

are discoverable, the presumption that the case is tuberculous is reasonably safe.

Marked acidity of the urine is a distinct feature of most cases. Other aids toward a differential diagnosis are the determination of some tuberculous focus elsewhere in the urogenital tract, and the reaction or course of the affection under certain drugs when used locally; silver salts and potassium permanganate proving quite irritant, while bichloride of mercury, even in unusual strength, seems beneficial. The use of the tuberculin test may mislead and is not warranted. The employment of the cystoscope is emphatically condemned as uncalled-for and productive of trauma from which the diseased mucosa receives added damage.

The prognosis may be dismissed as exceedingly grave, unless systemic improvement overtakes the patient in the earliest stages.

TREATMENT.

General treatment, in line with our present-day measures for the upbuilding of the tuberculous, is but rarely productive of much good, owing to the constant presence of irritation, and the lack of tendency toward spontaneous healing. Where circumstances permit, however, all such measures are worthy of trial.

Local treatment is capable of affording much relief, but is rather liable to aggravate certain symptoms, to set up mixed infection, and to hasten the process; hence it is to be entered into with extreme caution. The tuberculous bladder behaves with peculiar irritation under the exhibition of silver salts, of potassium permanganate, and even of boric acid; whereas the use of bichloride of mercury is followed at first by a moderate reaction and later by a distinct amelioration of urinary symptoms. Guaiacol and iodoform have some earnest advocates but the beneficial effect of bichloride has been more generally noted. If low hydrostatic pressure allows an easy irrigation of the bladder with small quantities of the solution, the use of any instrument is avoided; otherwise the instillation of a smaller quantity, preferably through a soft catheter, is performed. The strength may be from 1-20,000 to 1-8,000 by irrigation, and 1-15,000 up to 1-1,000 instillation. The frequency of treatment must be governed by the reaction and the evidence of good results.

Operative measures, such as direct cauterization, curettage, perineal and suprapubic drainage, have all been given more or less thorough trials, only to be condemned as too radical for a process of this nature, unless indicated by an exceptional case.

CASE-REPORT.

Patient.—Mr. S., single, age 25, American; of rather tall and slender physique, and tuberculous type. Of late years his work has been indoors and of a clerical nature. Habits temperate.

Family History.—Negative as to tuberculosis, except for one maternal aunt, who died of pulmonary tuberculosis at the age of 40.

Previous General History.—When a child, had trouble with adenoids and enlarged tonsils; possibly also enlarged cervical lymph-glands. Shortly before onset of urogenital troubles, was rooming with a man who had spent some time in the west for supposed "lung trouble." Patient was then doing out-door work, with considerable heavy lifting.

For a rather indefinite period, has had, at times only, a slight cough, without expectoration; cough may be entirely absent in good weather. Cough is not of a particularly tuberculous character, but is mentioned with reference to the physical findings to be noted later. (Temperature when first under treatment ranged from 99 to 101.6.)

Genito-Urinary History.—Negative up to four years ago. At that time, in 1903, the left testicle (or epididymis) became suddenly swollen; patient associates it in his own mind with some heavy lifting. He says the doctor in attendance seemed to consider it of a rather unusual or puzzling type, and gave some internal treatment, but little if any local treatment. The swelling slowly subsided, leaving a hard, painless, irregular nodule, the size of a grape, in the epididymis. In May, 1905, or nearly two years later, the patient had his first and only attack of gonorrhoea; or to be exact, a urethritis, clinically gonorrhoea, but checked and "cured" (so-said) in a week, by the use of injections. In October of that year, nearly five months after the urethritis, patient began to have the first symptoms of urinary disturbance, as described below.

In December, 1905, the right testicle (or epididymis) became swollen in much the same manner as had the left, two years previously, and followed about the same course, except that on subsiding two nodules were left in the epididymis, one the size of a cherry-seed and one the size

of a peachseed. These nodules, on both the left and the right side, remain practically unchanged today, although patient thinks the largest one may be slightly larger.

The *bladder symptoms* started with an increased frequency of micturition, and this has ever since been the prevailing symptom. There has been but little pain, except on over-distention; there has been, at times only, some burning during the passage of urine. The urine has been quite cloudy, especially the last portion. Blood has never been noted in the urine. During the last few months of 1906, there was a decided improvement in patient's general health, and likewise in the bladder symptoms, with a relapse commencing rather suddenly in February of this year. For a time during the summer of 1906, the bladder received irrigations, nature unknown, but with no apparent benefit. When the patient was referred to me in March, he was in the habit of urinating 8 to 10 times during the night, and every two hours during the day.

*Examination (with findings stated very briefly).—*Apex of right lung dull on percussion, with respiratory sounds diminished; few fine rales on deep breathing.

Right and left epididymis as described before; the nodules are hard, irregular, and almost painless on pressure. Prostate is of normal size, consistency, and tenderness, except for an enlargement on right side near bladder, which enlargement is not tender, and gives the sensation of a tense accumulation of fluid. Very slight debris from prostatic massage. Seminal vesicles apparently normal or nearly so. Urethra normal, and not hyper-sensitive, even in prostatic portion.

Urine.—All uniformly cloudy, except last two drachms, which consists of heavy white or grayish pus, of granular appearance. (This pus-accumulation is obtainable from bladder on catheterization, and is not extruded from prostate.) Specific gravity 1024; very acid, does not decompose readily on standing. Microscopically, sediment practically all pus-cells; no casts, no red-blood-cells; few crystalline elements. Stained specimens;—numerous examinations failed to show any bacteria; the last examination, of a carbolized and carefully centrifuged sediment, stained by Ziehl and Gabbatt stains, showed two or three organisms much resembling tubercle bacilli, but not typical.

Treatment.—Bladder irrigations of all silver compounds proved to

be decidedly irritating, and of potassium permanganate extremely so; while irrigations of bichloride of mercury in increasing strengths were more soothing, and must be given the credit for whatever good has been accomplished. The bladder capacity, which was in March about three ounces, is now about eight or ten; the patient gets up twice and occasionally only once during the night, and can go four hours during the day without urinating. The urine itself generally shows less pus, but on certain days is about as bad as at first.

His distress has been alleviated, but no cure has of course been accomplished, nor is such a result within hope.

Symptoms, Diagnosis and Treatment of Acute Articular Rheumatism.*

By R. H. Hamrick, M. D.,

Pratt City, Ala.

The symptoms of acute or inflammatory rheumatism exhibit wide variations, according to the intensity of the attack.

One attacked with acute inflammatory rheumatism may complain of malaise, angina, laryngitis, fever and a general feeling of discomfort, or he may have more pronounced symptoms from the outset, viz.: Chill, sore joint or joints, high fever with extreme restlessness, severe pain, in fact there is hardly any other disease in which pain is so prominent a symptom as in acute articular rheumatism.

The number of joints involved may be one or many. In cases of average severity the general features are subordinate to the local symptoms, the fever is usually moderate, not exceeding 103 (F) and temperature curve is of the irregular remittent type, corresponding in severity with the joint symptoms. The skin is bathed in a copious perspiration, which is not dependent on a previous fall of temperature. The sour disagreeable odor emanating from this perspiration, is characteristic of inflammatory rheumatism.

Nervous symptoms are rarely observed. The character of the first symptoms of the disease is no index to the persistency of the attack. A case seemingly mild at the beginning may last for six or eight

*Read before Jefferson County Medical Society.

weeks; and on the other hand cases beginning with severe and distinct symptoms may terminate in a much shorter time.

In most cases pain is much complained of, and is augmented by motion, in fact as stated before, pain is one of the most prominent symptoms in acute articular rheumatism, and remains so, unless controlled by treatment, or subsides with the natural course of the disease.

First one joint becomes swollen, tender and painful, then in rapid succession other joints become involved, rather a shifting from one joint to another. Sudamina and a rapidly developed anemia are prominent symptoms of acute articular rheumatism. The diagnosis can in most every case be correctly made by including the other more common joint affections, viz.: Gonorrhoeal anthritis, septic arthritis, arthritis deformans, tubercular joints affections and joint symptoms occurring in the early stages of syphilis sometimes resemble acute articular rheumatism. By carefully observing the symptoms in a given case and being familiar with the symptoms usually present in those common joints affections just enumerated, a direct diagnosis is not very difficult, however should there be an error in diagnosis and the case treated for acute articular rheumatism for the first few days, not such harm will be done, except in cases of osteomyelitis, and should such an error as this occur and osteomyelitis be treated for inflammatory rheumatism for any great period of time it would be most unfortunate for the patient, as osteomyelitis demands early operative treatment.

TREATMENT.

When a diagnosis of acute articular rheumatism is made hygienic as well as medical treatment should be directed. The patient should be clad in a light flannel garment and put to bed and covered with light woolen blankets. They should be informed that a case of average severity should remain in bed for from three to four weeks, as by having them remain in bed we will to a great extent reduce the number of cases with embarrassed circulatory symptoms.

As we all know endocarditis is one of the most frequent and troublesome complications of acute articular rheumatism. If possible daily sponge bath with warm water and change of clothing should be given, where not contraindicated this always adds to the comfort and well

being of the patient. By so doing we get rid of a considerable per cent of the sweaty odor so common in this disease.

The medical treatment of acute articular rheumatism like many other diseases, is sometimes disappointing to ourselves and more especially to our patient; however the relief obtained from a few well selected drugs will maintain his confidence in our ability, and our lease on his salary. At the beginning, the bowels should be opened, preferably with calomel and salts, and kept active throughout the attack. Alkaline diuretics such as potassium citrate freely administered I have found beneficial. Also encourage drinking freely of water or limade, by so doing the kidneys are kept active.

The inflamed joints should be wrapped in flannel and put at rest. They should not be massaged or handled any more than possible during the acute stage of the disease, as by motion or handling pain and swelling is increased.

The diet during the acute stage, or stage of fever, should be the usual fever diet.

To actually combat the symptoms and progress of the disease, sodium salicylate (made from oil of winter green) has proven of more value to me than any other remedy, and where not contraindicated I invariably use this drug first. It should be continued as long as the fever and pain last, in suitable doses. Where a pure drug is given, and properly administered, more or less relief is obtained in a great majority of cases. I have sometimes used the oil of wintergreen, but not so satisfactorily, and it is much more apt to disagree with and upset the stomach, than the sodium salicylate. In a few cases quinine has seemed to give some relief. For the severe pain morphine or codine hypodermically administered is by far the most reliable and least harmful.

As has been stated the recumbent position should be maintained throughout the attack in order that we may reduce to a minimum the liability to heart complication. A condition of which the utmost care should be used to prevent.

The treatment of this complication as well as other complications are assigned to another paper, consequently will not be taken up here. however this sometimes embraces the most important part in the treatment of acute articular rheumatism.

During convalescence which is very tedious, the patient should be fed on a more liberal diet of the most nutritious character compatible with digestion. Massage, daily baths, sunshine and open air, if the weather will permit, are all essentials for satisfactory progress during the period.

For the rapidly developed and sometimes extreme anaemia, iron in some form is indicated with a nutritious diet. I have used syr-ferri iodide in cases of tedious convalescence with gratifying results, however other forms of iron has seemed to have the desired effect in other cases.

In this period of the disease as well as during the febrile period it is not wise to neglect the bowels and kidneys, as a moderate amount of elimination should be kept up.

During the convalescence it is not best to administer too many drugs, but rather depend more on proper hygiene and feeding. As most patients at this time are anxious to, as far as possible, leave off medication.

There are a number of drugs that might be mentioned suitable for this stage of the disease, but for the reason mentioned above I will not enumerate them.

Secondary or Symptomatic Anemia, Its Etiology and Pathology.*

By L. G. McCollum, M. D.,

Birmingham, Ala.

The term of secondary anemia signifies that it is secondary to some disease which has preceded it. In taking up the causes of secondary anemia we have first to consider the circumstances which surround the patient, as the surroundings of the patient play an important part in cases of impoverished blood.

The causes which occasion secondary anemia may be classified in a number of groups, including unfavorable sanitary conditions, hemorrhage, parasites, infectious diseases, intoxications, organic disease, and

*Read before Jefferson County Medical Society.

new growths; diet also has its place in the cause of this disease, though it has never been definitely decided as to just what part diet does play. Senetor and Luceani found that the blood of Italian fasters did not undergo the deterioration that might be expected, and experiments upon animals have shown an increase in the number of corpuscles instead of decrease. Residents of tropical climates usually present an anemic appearance, especially so when they have recently moved to such a climate. This appearance is usually largely deceptive, as the appearance is probably due to vaso-motor conditions, rather than to a condition of the blood.

Hemorrhage may occasion moderate or intense anemia, according to its cause. In cases of traumatism with rupture of large vessels, in instances of hemorrhages from the stomache or intestinal tract, after hemorrhages from the lungs or uterus, or in cases of loss of blood occurring from superficial carcinomata or other tumors, the degree of anemia is sometimes intense. In most instances of severe, but not extreme hemorrhages, the number of corpuscles sinks to three millions or at most two millions per cubic millimeter, and the hemoglobin to approximately equal proportions, although there is usually here, as in other forms of symptomatic anemia, a greater reduction of coloring matter than of blood cells.

PATHOLOGY.

The most conspicuous feature is splenic enlargement, this may be slight or the entire left side may be filled by the splenic tumor, which is very hard, and a section of this shows a dark red color, quite often the surface is somewhat roughened and the histological examination shows hyperplasia such as occurs in ordinary hypertrophic conditions. The liver is also quite often enlarged, although at times this organ is found to be perfectly normal. The lymphatic glands are also frequently enlarged, though this enlargement is never very conspicuous. The bone marrow may be diffusely reddened and soft, but extended observations on this point are wanting.

The blood presents the most important features, the red corpuscles are invariably reduced, the character of the red corpuscles is altered in correspondence with the degree of anemia. In all cases there is reduction in the amount of hemoglobin which progresses more or less regularly, and which may reach extremely high grades in severe cases,

in ordinary instances the proportion determined by Fleischl's hemometer varies from sixty to seventy or seventy-five per cent. In severe cases it falls to forty or thirty per cent., and sometimes the amount may be reduced as low as fifteen or twenty per cent. Taking blood examinations of one hundred consecutive cases of gastric, intestinal, cardiac, nervous, pulmonary and intestinal diseases, in which a certain degree of palor led to a blood examination it was found that the average per cent. of hemoglobin was seventy-four, but among these cases there were a number in which the proportion was far below the average, some of them being as low as thirty or forty per cent. of the normal. The number of corpuscles do not decrease as greatly as does the proportion of hemoglobin, and in many instances the corpuscular richness is actually normal or even above the normal. Formerly it was thought by some that symptomatic anemias are characterized by an equal reduction in the number of corpuscles and the percentage of hemoglobin; this however is incorrect, the rule being that the hemoglobin suffers greater reduction than the corpuscles; the disproportion however in most instances is only slight, as may be seen from the fact that in the hundred cases alluded to, the proportions were 88.6 per cent. corpuscles and 74.6 per cent. hemoglobin. There are numerous instances, however, in which the disproportion is as great as that met with in typical cases of chlorosis, such instances occurring with particular frequency in cases of tuberculosis, syphilis, rickets and carcinoma.

CHEMICAL CHANGES.

The most important alterations of the composition of blood in secondary anemia is the decrease in albumen and the increase in water, both of these alterations correspond with the reduction in specific gravity. The alkalinity of the blood is usually diminished though it may be normal and is never decidedly altered, the saline constituents, particularly the potassium and sodium, are of great interest, nearly all recent observers having found that there is a uniform diminution in the quantity of potassium and an increase in the amount of sodium. The phosphoric acid of the blood, according to Biernacki, is usually reduced, though other observers have found it increased. The amount of iron discovered by chemical analysis does not always correspond to the apparent reduction determined by estimation of the hemoglobin.

Becquerel and Roeder found the quantity reduced in anemia, but Bier-nacki, though he has substantiated these results in a measure, has found that the reduction is small, and in many cases, in comparison with the solid matter of the blood in general, it is often increased.

Leucocytosis, Its Diagnosis And Prognostic Value in Disease.*

By Harry Levy, A. B., M. D.,

Birmingham, Ala.

Normal blood of the healthy adult contains an average of 7500 white blood cells to the cubic millimeter. The various forms of leucocytes occur in approximately the following proportion:

Polynuclear neutrophile leucocytes 70 to 74 per cent.

Large mononuclear and transitional forms.. 2 to 4 per cent.

Lymphocytes 22 to 25 per cent.

Eosinophiles 2 to 4 per cent.

Mast cells 0 to 0.5 per cent.

In children the lymphocytes often run as high as 40 per cent. When the polynuclear neutrophile leucocytes are increased in number the condition is known as polynuclear leucocytosis, or simply leucocytosis. The term lymphocytosis indicates an increase chiefly of the lymphocytes. In a number of diseases the eosinophile cells alone are increased in number.

Leucocytosis may be simply a physiological phenomenon, or an evidence of some morbid condition in some part of the body. Physiological leucocytosis occurs invariably about two hours after the ingestion of food, during the most active part of gastric digestion, especially marked in individuals of vigorous digestive power. The taking of a cold bath will produce a moderate leucocytosis. Also vigorous exercise, and pregnancy.

Pathological leucocytosis occurs in all infectious diseases with the exception of typhoid fever, malaria, measles, uncomplicated tuberculosis and influenza. Virchow has stated that leucocytosis occurs in all morbid processes in which the lymphatic glands take part. Inflammatory leucocytosis is a term applied to the form which accompanies

*Read before the Jefferson County Medical Society.

all exudative processes. Leucocytosis is frequently found in those suffering from non-ulcerated malignant tumors, such as gastric cancer and growing sarcomata. Also present in primary and secondary anemia, chlorosis, and during the period of reaction following the injection of Koch's tuberculin. Septic infections are without exception accompanied by a leucocytosis.

THE DIAGNOSTIC AND PROGNOSTIC VALUE OF LEUCOCYTOSIS.

As a fundamental principle it may be stated that in any morbid process accompanied by leucocytosis a low leucocyte count indicates one the following two conditions: 1. A mild infection. 2. A severe infection in an individual whose power of resisting the infection is low. On the other hand, a high leucocyte count means: 1. A severe infection in an individual of moderate resisting power. 2. An infection of moderate severity in an individual of great bodily vigor and a high power of resistance to the infection.

The importance of leucocytosis, we shall briefly review in the following diseases.

PNEUMONIA.

In this disease leucocytosis is almost invariably present, though it may not be much above normal in mild cases. Frequently in cases that terminate fatally, there may be no leucocytosis, but rather a leucopenia. In the aged, alcoholics, and cachectic individuals, to whom pneumonia proves to be a terribly fatal disease, the leucocyte count is invariably low.

TYPHOID FEVER.

An increased number of leucocytes, in the absence of any concomitant pyogenic infection, or any possible complication of typhoid fever, is sufficient in itself to exclude the diagnosis of this disease. There is usually leucopenia or diminution of the white blood cells during the course of an uncomplicated case of typhoid fever. The finding of a low leucocyte count has saved many a typhoid patient from an appendectomy at the hands of some of the most eminent operators in this country and abroad. It has also aided in obscure cases in excluding cerebro-spinal meningitis, pneumonia, and gall bladder infections. During the first six hours following intestinal perforation there may

be only a very feeble or no leucocytosis at all. After that the number of white blood cells steadily increases as the infection of the peritoneum spreads. A severe course of hydro-therapy will have a marked effect on the leucocyte count, invariably increasing it.

In diphtheria we find a leucocytosis, though not so high as in other diseases of the throat accompanied by like clinical symptoms.

Occasionally in the mild forms of scarlet fever and measles, where a diagnosis is in doubt, a leucocyte count will solve the problem. In the absence of any pyogenic infection, a leucocytosis means scarlet fever. Measles is never accompanied by a leucocytosis, more commonly we find a leucopenia.

All suppurative processes anywhere in the body produce a leucocytosis. Deep seated non inflammatory tumors can thus be differentiated from inflammatory tumors by the presence or absence of leucocytosis.

APPENDICITIS.

In the catarrhal form of the disease, the leucocytes rarely go above 12,000. In the other more severe forms it goes much higher. In cases where the temperature is slightly above normal, or even normal, pain and tenderness not alarmingly severe, but a high leucocytosis present, operation should not be delayed, as a gangrenous or perforated appendix is often found when the abdomen is opened.

Influenza is characterized by an absence of leucocytosis; more frequently do we find a leucopenia. This obscure malady can thus be differentiated from other morbid conditions by a simple leucocyte count.

Tuberculosis uncomplicated by any pyogenic infection is invariably free from leucocytosis.

Cerebro-spinal meningitis is accompanied by a leucocytosis, running 40,000 per cubic millimeter. Tubercular meningitis, which often presents strikingly similar clinical symptoms, usually runs its course with but slight leucocytosis, and frequently the latter is altogether absent.

A differential leucocyte count is of the utmost value in the diagnosis of the interesting but rather obscure disease known as trichiniasis. A relative increase as well as an absolute presence of the eosinophiles is constantly found in this disorder. This disease is often confused with typhoid fever, but a differential leucocyte count will lead to a correct diagnosis.

The presence of all intestinal parasites is often accompanied by a

leucocytosis, eosiniphilic in character. Chronic bronchitis, asthma, and emphysematous conditions of the lungs, also show an increase in the number of eosinophiles.

Report of case of Potts Paraplegia With Treatment and Results.

E. Laurence Scott, M. D.,

Birmingham, Ala.

In giving a report of this case, I do so with the realization that the result that I have obtained is one that is expected in the majority of these conditions, when careful attention is paid to details of treatment.

I find from the literature at my command that fully 75 per cent. of recoveries are usually made in private practice, but of course we could expect our results to be complete or even fair only in such families where we have their hearty co-operation and help, and it was my good fortune to have this condition of affairs in the treatment of this case.

Not only should this case prove of interest on account of the result that has been obtained, but also from the fact that it demonstrates that we are able to do something for these conditions outside of institutions especially equipped for the treatment of orthopedic cases.

As to the general history of the real cause of the paraplegia, *Potts Disease*, I shall attempt to give only a short outline. About three years ago the parents of this child noticed that the child executed the normal movements of the spine, such as flexion and rotation, in a guarded manner, and then the acute symptoms of the disease made their appearance, such as night cries, referred pains in the abdomen, and in fact nearly all of the classic symptoms seen in the regular cases of *Potts Disease* that come to our notice. A slight left dorsal scoliosis made its appearance in a short time, and the child was then placed under treatment. A diagnosis of the case was made, and plaster of paris jackets were applied, but with no apparent success, owing no doubt to the fact that the disease was located in the seventh dorsal vertebra, which point is too high up in the spinal column for a plaster jacket to exert its grasp and hold the spinal column in the

proper attitude for treatment, that of hyperextension. These jackets were applied and worn for several months, but as before said, with no apparent result as the deformity of the spine increased very rapidly and continued so for about one year. The parents tell me that when the deformity began to make its appearance the child seemed to be relieved of the pain: this is rather paradoxical turn of affairs, and we cannot give too much credit to it.

The posterior spinal deformity increased rapidly, until it had reached the size of an ordinary base ball, involving the sixth, seventh and eighth dorsal vertebrae. When the deformity had reached this stage it seems to have stopped, and it was then that the parents noticed the involvement of the lower extremities, evidenced by the child not using them as she had and complaining of tiring easily and not being able to stand for any length of time. This condition continued on for several months, the use of the legs becoming less and less, until the child was finally forced to use crutches to support her body weight. She was able to use the crutches for several months, but in March of this year she had become so weak in the lower extremities and had so little use of them that she was confined to an invalids chair and had to be propelled from one part of the house to the other.

It was on July the 10th of this year that the patient came under my care for the first time, and the physical examination at that time presented as follows:

A *kyphos*, commonly known as a hump, about the size of a base ball, extending from the sixth to the eighth dorsal vertebrae, and to all outward appearances, being a case of bony ankylosis or fusion of this part of the spine, because of the fact that the child did not complain of any pain on assuming the sitting posture nor was I able to elicit any muscular spasm on forcible movements of the spine. There was absolutely no pain in this region, nor was there any referred pain. Unfortunately I was not able to secure a radiograph of this child's spine, which no doubt would have proven valuable in showing the true condition in the case.

Some slight right lumbar curvature was seen. The illiac fossae were perfectly clear from any abscess formation, and thoracic deformity was no more than would be expected to accompany such a posterior deformity as this case presented. On examination of the lower extremities, I found the sensations as to heat and cold fairly well preserved, but the motor functions absolutely negative. This motor

disturbance was so pronounced that the child could not move even a toe and her limbs dangled as though hinged to the pelvis. The patella reflexes were very active, and ankle clonus was present to a marked degree: this condition of the reflexes is to be expected in these cases however.

The treatment demanded and instituted in this case was complete rest and quiet in bed. The patient was placed on what we know as a *hyperextension* block, and on a Bradford frame. A short description of the hyperextension block would be as follows: Block made of some light ordinary wood, preferably white pine. The block extended from the cervico-dorsal to the dorso-lumbar region and wide enough to support the trunk comfortably, extending sidewise out to about outer edge of the scapulae. The total length of the block in this case was about ten inches, and about eight inches in width. It was flat on the under surface and convex on the upper. A gradual rise extending from the dorso-lumbar end, from a flat edge, to the highest point of the convexity, which was in all about one and one-half inches, and at about six and one-half inches from the start of slope upward; from this point the downward slope was more precipitous, and again went to the flat edge. A groove, one-half inch deep and one half inch wide, ran down the center of the block in its longest diameter, affording protection to the posterior spinous processes.

The whole block was padded with piano felt. This was placed on the Bradford frame, in bed, and child was placed on the block (*with the point of greatest deformity directly over the greatest point of convexity of the block*). By placing the child in this attitude, we were able to use the child's body weight as the pressure force in producing the gradual hyperextension of the spine, and so separating the bodies of the vertebrae to the greatest possible degree. Head and foot traction is to be used in most of these cases to stretch the spine, as it were, but I did not think it necessary in this particular case, and therefore it was not used.

I have not given any description of the Bradford frame, as its uses are too well known to take up time in a description. The patient was kept lying on her back in the position described for a period of seven weeks, and was not allowed to sit or move off of the block once during the time, except to bathe her, etc.

In reference to the bathing it may be well to say how it was done. The anterior surfaces of the body were bathed and the child was lifted

off of the block and placed on the bed "*face downwards*," and the posterior surfaces bathed and rubbed: this was done daily. The region of the back exposed to the pressure of the block was bathed and rubbed once each day with a 75 per cent. solution of alcohol.

As to the results of this stage of the treatment, it was possible for the patient to move her toes a little after five days, and gradually all of the motor functions of the thighs and legs came back into use, until at the end of seven weeks, she was able to use her legs at will while lying in bed. After about one week of the treatment strong massage was given to the thighs and legs once each day. At the end of about the seventh week I applied a back brace to the patient and allowed her to sit up, but not use the legs. This I consider one of the most important steps in the treatment; careful regulation of the walking. For the first two weeks only fifteen minutes to a half hour each day was she allowed to use the legs. When she first commenced to walk again, she did so with the aid of some one holding her arms, and when she was able to stand she was allowed to do so, and was taught to push a baby carriage before her, and in this way she gradually regained her sense of equilibrium. During this time she was given daily for fifteen minutes massage and the Faradic Interrupted current to the thighs and legs.

The brace as applied to this child was modeled after the one used and recommended by R. Tunstall Taylor of Baltimore, in the treatment of cases of high dorsal Potts Disease.

When the case was last seen by me, on November the fourth, she was able to use the legs perfectly well, and could run and jump, and gives every indication that she will progress to complete recovery. I shall have the brace kept on her for several months, at least until all the danger of a relapse has passed.

CONCLUSIONS.

I have not attempted in this brief report to go into anything like a report of a case of Potts Disease nor have I attempted to deal with the treatment of this particular disease, but have merely attempted to give the outline of the treatment of the *parapleggia* which so frequently complicates and follows these cases.

I have put particular stress on the condition of the child's lower extremities, in hopes that it may prove of some service in showing that

even though these cases may at first appear hopeless and beyond recovery, good results, in the majority, can be obtained if we use proper care.

Leukemia*

*Kenneth Bradford, M. D.,
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Leukemia is a disease, characterized by an increase of the leucocytes in the circulating blood, and by various pathological changes in many organs, but especially in the spleen, lymphatic glands, and bone marrow.

In the absence of any definite pathological basis, we can best classify the disease; according to the blood picture, and this gives us three forms; myelocytic, lymphatic and mixed cell, according to the type predominating. This classification is only one of convenience, for every case of leukemia carefully studied shows involvement of the bone marrow, locally may be, but somewhere, and hence is myeloblastic.

We know nothing as to the cause of this uniformly fatal disease, although various theories have been advanced.

There seems to be nothing in family and previous history which can be regarded as predisposing, unless it be trauma. As to direct heredity, only two cases have been reported in mother and child. There was a history of malaria in thirty of one hundred and fifty analyzed cases. Tuberculosis appeared in the history of only fourteen, of some fifty odd cases, and tuberculosis injections have proven no connection. No age is exempt, leukemia has been observed in the new born child, and as late as the seventieth year of life, the acute type predominating in children. Men seem more prone to the disease than women, probably two to one.

Stomatitis affecting the buccal and pharyngeal mucous membrane and chronic tonsillitis, have been frequently noted, and thought to be causative, but may simply denote a mode of onset, or be a part of the symptomatology.

What the nature of the irritant, be it toxic, infectious, hyperplastic or chematactic, one or all, we do not know, but we do know that in leukemia, something decidedly abnormal, decidedly myeloblastic is at

*Read before the Jefferson County Medical Society.

work in the blood corpuscle factory, the bone marrow, to make it produce, instead of the normal 25 to 35 per cent. of lymphocytes, at times 99 per cent. and over, instead of a zero per cent. of myelocytes in the circulation sometimes 30 per cent or more, and instead of the normal 65 to 70 per cent. of polynuclear leucocytes, less than 1 per cent. in extreme cases, to change a red and white cell ratio from 1-5,500 to 1-10, and even 1-1, in extreme cases. All cases are myelogenous in origin, and experimental inoculation with leukemic blood and pathogenic organism, directly into the bone marrow, may throw more light on the problem.

As to the metabolism of leukemia, there has been noted in acute cases, a large amount of urine and notable increase of total nitrogen and uric acid with increasing excessive excretion of nitrogen up to the end denoting a progressive destruction. The blood contains toxic substances generated by destruction of leucocytes.

The pathological changes that are distinctive comprise the alterations in the blood formula and infiltrations of the organs and tissues of the body with lymphoid cells; the spleen, bone marrow and lymphatic glands showing decided lesions, and the heart, lungs, kidneys, brain cord and other tissues showing secondary, but well marked invasion.

The whole picture is an enormous increase of leucocytes blocking the blood vessels, and the infiltrating into nearly every organ and tissue of the body, destroying the normal structure, and interfering with function. In all cases thoroughly studied, the bone marrow is involved, usually that of the long bones, but one case was localized in the vertebral column. The essential change in this marrow seems to be a replacement of the fatty tissue by one that is cellular, and hyperplastic; in other words, the red marrow seems to be undergoing changes leading to rapid and abnormal formation of new tissue. The blood is usually light in color, and may be so charged with leucocytes as to resemble pus.

The conspicuous feature, of course, is the increased number of leucocytes in the blood. In moderate cases from one to three hundred thousand per Cu. M. M. In severe cases they number many more, while in mild or beginning cases, they may for a time be normal or subnormal.

There is practically always an associated anaemia, the red blood being reduced, on an average, to two million. Or sometimes they run ex-

tremely low, the haemoglobin runs about 40 per cent. on an average. Nucleated red cells, are often present in considerable numbers, as are other abnormal red cells, giving the blood picture of severe anaemia.

Now let us follow the clinical course of the disease, remembering that we are dealing with something wherein the lesions touch nearly every organ of the body, and play especial havoc with the common carriers, viz.; the blood and lymph systems. This means that the symptoms are exceedingly numerous and inconstant and the modes of onset exceedingly variable.

Revising our classification a little further, note that we have to deal with two distinct forms, acute and chronic leukemia, the latter much the more common, and fairly constant in its onset and course.

The beginning is so insidious that the disease is fairly well established when the patients seek the advice of a physician. They usually come complaining of weakness. This is the most constant symptom, and is usually accompanied by other symptoms of anaemia, as palpitation, indigestion, etc. Many complain of persistent nose bleed, or bleeding from the gums, or other localities, and this tendency to hemorrhages seems to be a classical symptom, yet not constant. Priapism painful and continuous may be an early symptom, due probably to inflammation in the cord.

The gradual increase in the volume of the spleen, is the most prominent symptom in many cases, and it may extend over and beyond the navel, and down around almost to the pubes, apparently filling most of the abdominal cavity? Extreme pallor is common. Fever which may go as high as 103 deg. or more, is present in most cases of chronic leukemia.

The blood picture.—In the so-called myelogenous type, there is an increase of the colorless corpuscles, so that the ratio to reds, on an average is 1-10 it may be 1-1, or exceeding even that. The characteristic features is the presence in large numbers, about 30 per cent., in the blood of large nonnuclear cells, staining granular, and with neutral stains. This cell is distinctive, and is not to be seen in normal blood. There are to be seen also many cells whose granules stain pink (Eosinophiles). The lymphocytes are little, if at all increased. Polynuclear cells are usually about normal.

In the lymphatic form, the picture changes and we see an enormous increase in the lymphocytes, sometimes above 90 per cent.

General glandular enlargement, slow, but uniformly progressive, is the rule in chronic leukemia.

Acute leukemia.—Has many modes of onset, and may simulate in its clinical course any number of diseases, as typhoid, septicemia, tonsillities, scurvy, malaria, tuberculosis, ulcerative, endocarditis, pyemia, purpura hemorrhagic, pernicious, anemia and osteomyelitis.

Often it begins like chronic leukemia, with sudden glandular enlargement, weakness and pallor, and runs the same course, only more rapid, severely and acutely.

The diagnosis.—This can only be made by an examination of the blood, and even then, a careful differential count is essential, for it is the change in the blood formula (qualitative), that is pathognomonic.

Whooping cough must not be confounded, as it gives a lymphocytosis.

Prognosis.—A few cases recover. The great majority prove fatal within a few months, in acute cases, within two or three years, in the chronic type. The pure lymphatic type seems to be the most acute and malignant, although some cases hang on for years, transient improvements taking place from time to time. High fever, and decided tendency to hemorrhages are the most unfavorable symptoms. Diarrhoea and dropsy signify evil.

A sudden and marred fall in the leucocytes is a bad sign, often occurring just before death.

Intercurrent diseases cause a remarkable drop in the white cells, but they usually return to the original leukemic count later.

Treatment:—Some remedies seem to influence the course favorably, of these, arsenic is the best, X Ray, so far has had no brilliant results, its use is based on the theory that leukemia is of cancerous origin. The behavior of leukemic blood under the influence of some intercurrent diseases, has led to the suggestion of sera injections, antistreptococcus especially. A disease so uniformly fatal, this is worthy of trial, and should be made into marrow. Fresh air, plenty of nitrogenous food and freedom from care, are especially essential in a state of such disordered metabolism.

In conclusion let us bear in mind, that the primary pathological lesion is in the bone marrow and here we must direct our experiments in order to solve the problem. The leukemic blood is but one of the many physical manifestations of the disease.

The Diagnosis and Treatment of Local and General Suppurative Peritonitis.

By W. P. McAdory, M.D., Birmingham, Ala.

By the term Local Suppurative Peritonitis, we mean an inflammation of a limited area of the peritoneum with the formation of pus, which is walled off from the rest of the peritoneal cavity by adhesions. We seldom have this condition without it being preceded by a plastic inflammation with the formation of the adhesions, and the pus or infected material escapes into this mass of adhesions, where it continues to develop.

This condition usually occurs following an infected condition of some of the abdominal or pelvic organs, most frequently the appendix, next the Fallopian tubes, then the gall bladder, stomach, etc., in fact any of the abdominal organs.

Usually the diagnosis of this condition is not difficult, except in abscesses under the diaphragm, and depends upon the symptoms of the diseased condition which precedes it, taken along with the usual symptoms of abscess in the peritoneal cavity, which are as follows: Pain, this is at first general in character extending more or less over the entire abdomen, gradually becoming localised over the infected area. Tenderness is usually marked over the locality of the abscess. Muscular rigidity is usually present over the same area. Vomiting is usually present, but not as distressing as in the general peritonitis. The temperature seldom runs a very high or constant course. Pulse fairly good and seldom over 120, except in chronic cases. The facial expression is not marked as in the general peritonitis. There is a tumor that can usually be felt. In fact the diagnosis can usually be made from the history, the presence of the tumor and the symptoms of sepsis.

The treatment of this condition is to open the abscess, remove the cause and drain. In doing this it is of course important not to get any of the infected material into the general peritoneal cavity. If the patient is very weak, or for any reason it is not well to prolong the operation, the abscess cavity may be opened and drained, and wait until a second sitting before removing the cause. But in my opinion where it is at all possible the cause should be removed at the first operation.

By the term general suppurative peritonitis is usually understood a condition in which there is a purulent inflammation of the entire peritoneal surface. I do not think this is well, for we have but one way

of telling how much of the peritoneal surface is involved and that is at autopsy. I think it would be better to include those conditions in which the inflammatory condition is not limited by adhesions. One operator including the latter class of cases, and another only those cases where practically all of the peritoneum is involved under the term of general suppurative peritonitis, has in my opinion led largely to the different results claimed by good men using the same method of treatment.

The diagnosis is made from the history along with the symptoms of general peritonitis, which are more or less familiar to all. Pain over the entire abdomen, usually severe, with marked general tenderness. Rigidity of the abdominal muscles with the thighs flexed on the abdomen. There is usually marked distension which grows more and more, until it seems that the muscles are stretched to their full capacity. Constipation is always present, while the attack may be ushered in with a diarrhoea. Vomiting is present from the beginning and is usually a very distressing symptom. Respiration is costal, shallow, and rapid usually from 30 to 40 per minute, and may be painful. The facial expression is drawn, the patient impressing you as one seriously sick. The attack may be ushered in with a chill or chilly sensation, followed by rapid rise of temperature, usually 104, remaining high. The pulse is small rapid and weak.

The treatment of this condition has been a much mooted question on account of the different interpretations that have been placed upon the term, and has radically changed in the last two years.

The accepted treatment at the present time is one that has been popularized by Dr. Murphy. The main points of which as taken from an article in Murphy's Practical Medicine Series, Vol. II. are as follows:

1. The rapid elimination of the cause of the peritonitis, whether it be a perforated bowel, gangrenous appendix, etc. This must be done with the least possible handling of the peritoneal contents.
2. Drainage by tube of the lowest portion of the pelvis through a suprapubic opening, and free drainage through the operative incision.
3. The elimination of all time consuming procedures at the time of operation.
4. The semi-sitting position of the patient after operation, the so-called Fowler position.
5. The absorption of large quantities of water through the rectum, which reverses the current in the lymphatics of the peritoneum, mak

ing the surface of that membrane a secreting instead of an absorbing one, and also markedly increasing the secretion of urine.

6. The prevention of peristaltic movements of the intestine by withholding all food and liquids by mouth, and perhaps by the administration of opium.

Any one can readily see that if the cause is removed with as little handling of the peritoneal contents as possible, a great number of cases will be considered as general suppurating peritonitis (leaving the inference that all of the peritoneum is involved) when only a small portion of it will be diseased. That which was formerly considered infected lymph that was thrown out over the peritoneal surface in these cases, is now respected as protective lymph and treated, very properly, as such.

The harmful effect of prolonged operations on infected patinets is familiar to all, they seem to stand a short operation very well, but go to pieces very rapidly when it is prolonged.

The Fowler position with the low drainage, will, of course, drain the cavity best. But my experience is that after the first twelve to eighteen hours, you are only draining the surface that is in contact with your drain.

Dr. Murphy lays great stress on giving large quantities of salt solution by rectum. This I think is good. But I believe it better to give a large quantity of salt solution under the skin during the operation, say 1500 to 2000 c. c. and repeat it in six hours if the patient takes it up well. I do not believe that there is any reversal of currents in the peritoneal lymphatics. I believe that as the peritoneum is a secreting membrane or organ if you furnish it with a large quantity of fluid in the blood vessels it will secrete more fluid. I also believe that the peritoneum will not absorb much pus if the pressure is removed by incision and ample drainage. In order to get more fluid into the vessels I use the rectal injection as near like Dr. Murphy recommends as I can after operation, continuing it until the patients rectum will not retain any more. But to my mind the good that is accomplished is the dilution of the toxins already in the system, washing them out of the tissues, and aiding in their rapid elimination, by the kidneys and skin.

As for keeping down the peristalsis in the intestines I depend on the hypodermic injection of morphine, and give my patients all the water and lemon water they wish.

In my opinion if we will remove the cause, be it a ruptured bowel or discharging appendix, or pus tube, or what. Relieve the pressure for a time by drainage, the peritoneum itself will do the rest.



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W. H. BELL, M. D., Editor.

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The Importance to Medical Students of a Preliminary Education.

It is to be regretted that so many young men, after spending their time and money in an attempt to secure a medical education that will entitle them to qualify for the practice, should upon final examination fail to receive the certificate of authority from the State examining board. Young men of common intelligence, prepared by a proper education, such as can be acquired in our public schools, should, at the end of a four years graded course in a well conducted medical col-

lege, be able to successfully pass the State board examination. But the fact remains that many of them do not, much to the chagrin of themselves and the examining board. There is something radically wrong, and no time should be lost in its correction.

If the teaching faculty of the college where these apply for admission are competent and do their duty few such results should follow if the young men are suitable material, a question that should be settled by the medical faculty before the pupil enters upon his medical course. There is a strong suspicion that the prime trouble consists in the absence of the necessary preliminary education.

The study of medicine is a serious business; it is hard and dry, more especially to the untrained mind. It is a long jump from McGuffey's fourth reader to the dry medical text-books, and many who attempt it will meet with such a shock and rebound that it will last them until they make their final examination and final fall. The medical student is not so much to blame, because he does not know what he is going into; he has an ambition to be a doctor and naturally supposes the medical college is the place to go to learn to be one, which is true if he is properly prepared to enter and undertake the arduous task. The rules of the Southern Medical College Association require that each student before entering upon his medical course shall present evidences of sufficient literary attainments to justify his entrance upon a medical course; but from commercial or other irrelevant reasons this requirement is entirely neglected and the student too often admitted on the payment of the stipulated fees.

When there was an examining board in each county in the State it can be imagined how easy it was for this deficient class to find an easy route to the all important certificate, through indifferent boards and the influence of friends and relatives. This condition of things is now of the past; and the one examining board in the State knows nothing of the applicant until after the die is cast. Hence every one must stand strictly upon his merits. It is to be hoped that medical college faculties will realize the true conditions and guard their doors against these incompetents and save the humiliation that must come to all such in the end.

Criminal Abortion.

There is great need of the profession, in its organized capacity as well as individually, to make a strong fight for stopping the crime of abortion, which is perhaps being more generally practiced than ever before. There are many causes which contribute to making this crime so prevalent, and to remove all the causes would be beyond the province and ability of the medical profession. Yet, as a profession and as individuals we can do much towards stopping it.

In the first place we should make the most strenuous efforts to purge our ranks of the few who have entered them and who use the name doctor to secure opportunity to perform their nefarious crimes for gain; who pose as doctors, but are abortionists. The law recently enacted by our State legislature empowering our State Board of Medical Examiners to revoke the certificate of any physician who induces, or aids in inducing criminal abortion will greatly assist the profession in clearing out this class. It remains for us to secure the evidence of guilt where possible and see that the State Board has an opportunity of enforcing the law.

Another phase of the subject, however, should have our attention. The flagrant advertisements seen in many of our daily and weekly newspapers are a standing invitation to weak humanity to commit crime. Such advertisements as "Dr. Blank's penny royal pills are safe and will relieve irregularities from any cause;" Mrs. Blank, midwife, receives ladies in trouble;" or "Blank sanitarium for women, perfect seclusion, good results, no danger," etc., invite weak women and vicious men to indulge in criminal practices. When it is seen that such a powerful agency as the press is lending its support to the maintenance of such fearful conditions it is time that greater effort were made for its correction. If such advertisements were not known, then it might be supposed that no way exists to obviate the consequences of unholy intercourse; and shame to the parties or fear of the results, which is the greatest factor in its avoidance, would interpose to prevent it.

It seems that public opinion is growing so tolerant towards abortion and foeticide that a great restrainer has been removed, and the crime is now practiced so generally that avaricious moral perverts, who in various specious and adroit phrases in their advertisements set forth their claims to relieve the weak and wicked ones so privately of the effects of sinful indiscretion, that no shame may result therefrom.

When we think seriously on this question we are constrained to condemn the moral laxity and sociological deficiency of our laws. For in no other country except France is there a greater number of criminal abortionists, nor is the practice even there more general than in our country. Unless a halt is called and the sociological aspects of the crime and its consequences are pointed out scientifically to the moral regenerative elements of society, that laws may be enforced for saving the weak, eliminating degenerative tendencies, and protecting all from the moral pervert, our country will have a more rapid decline than any nation which has hitherto existed.

Also public sentiment must be aroused to the enormity of this foeticidal practice, that it may be grappled with as the greatest crime of all the ages. It is time for a great moral awakening, which will shake our social system to its foundations, that a higher plane may be reached, and a firmer footing obtained by all those whose creed and practice is the moral uplifting of man, that his intellectual status may be founded upon such broad altruistic principles as would make successful the work of moral elevation, and the elaboration of such a high social code, that abortion and other criminal practices would be uprooted and cast aside.

Reviewing the condition in all its loathsomeness and frequency; considering the causes in all their disgusting iniquity; considering the effect with all its deadliness; and considering result in demoralizing abasement, obtunding sinfulness, and vitiating influence upon society and posterity; viewing it from any other aspect for consideration; what ought to be the doctor's position towards it? Surely, combination and effort that will reach the remotest part of every state in the union; having laws enacted and enforced that will be effective; and a united crusade to educate healthy sentiment for prevention, by improving all moral safeguards, and vigorously prosecuting all offenders. A positive stand along these lines by state organizations will place the doctor still higher in public estimation.

Resolutions of the Executive Committee of the American National Red Cross.

At the request of Brigadier-General Robert M. O'Reilly, Surgeon-General, U. S. Army, we gladly publish the following resolutions of the Executive Committee of the American National Red Cross, adopted

Oct. 18, 1907, for discharging the international duty assumed by this country in agreement with all the great powers, of protecting the Red Cross name and insignia from any use save that agreed upon by the Treaty of Geneva. The use of the name and insignia should be gradually eliminated within the next three or four years, in conformity with the provisions of the Treaty that the prohibition of the use of the emblem and name should be enforced not later than five years after the Treaty went into effect.

Whereas, By international agreement in the Treaty of Geneva, 1864, and the revised Treaty of Geneva, 1906, "the emblem of the Red Cross on a white ground and the words Red Cross or Geneva Cross" were adopted to designate the personnel protected by this Convention, and

Whereas, The Treaty further provides (Article 23) that "the emblem of the Red Cross on a white ground and the words Red Cross or Geneva Cross can only be used whether in time of peace or war, to protect or designate sanitary formations and establishments, the personnel and material protected by this Convention," and

Whereas, The American National Red Cross comes under the regulations of this Treaty according to Article 10, "volunteer aid societies, duly recognized and authorized by their respective Governments," such recognition and authority having been conferred upon the American National Red Cross in the Charter granted by Congress, January 5, 1905, Section 2, "The corporation hereby created is designated as the organization which is authorized to act in matters of relief under said Treaty," and, furthermore,

Whereas, In the Revised Treaty of Geneva, 1906, in Article 27, it is provided that "the signatory powers whose legislation should not now be adequate, engage to take or recommend to their legislatures such measures as may be necessary to prevent the use by private persons or by societies other than those upon which this Convention confers the right thereto of the emblem or name of the Red Cross or Geneva Cross,"

Be it resolved, That the Executive Committee of the American National Red Cross requests that all hospitals, health departments and like institutions kindly desist from the use of the Red Cross created for the special purpose mentioned above, and suggests that for it should be substituted some other insignia, such as a green St. Andrew's Cross on

a white ground, to be named the "Hospital Cross," and used to designate all hospitals (save such as are under the Medical Departments of the Army and Navy and the authorized volunteer aid society of the Government), all health departments and like institutions, and, further,

Be it resolved, That the Executive Committee of the American National Red Cross likewise requests that all individuals or business firms and corporations who employ the Geneva Red Cross for business purposes, kindly desist from such use, gradually withdrawing its employment and substituting some other distinguishing mark.

The Southern Surgical and Gynecological Association.

The Southern Surgical and Gynecological Association will hold its next annual meeting in New Orleans Dec. 10-12, 1907. Dr. W. D. Haggard, of Nashville, Tenn., is Secretary and Dr. Howard A. Kelley, of Baltimore, Md., is President of the Association. A full attendance and a good meeting is expected.

Personal Notes.

Dr. N. B. Dean, of Alexander City, was in the city a few days ago.

Dr. C. S. Strock, of Pelham, Ala, called at the Journal office on the 2nd.

Dr. Jos. B. Greene, of this city, has recently returned from a trip to Europe.

Dr. W. B. Buntin, of Six Miles, was a visitor to Birmingham last week and made a pleasant call at the Journal office.

Dr. J. A. Goggans, of Alexander City, spent a few hours in Birmingham on the 16th on his return from a visit to points in Texas.

Dr. E. Leroy Napier has recently opened offices in the First National Bank Building, in this city. He will limit his practice to diseases of the digestive organs.

Dr. W. D. Partlow, of Tuscaloosa, spent a few days visiting relatives in this city this week. Dr. Partlow is assistant to Dr. Searcy at the Insane Hospital.

Prof. Fink, of Temple Medical College, by invitation delivered a lecture before the students of the Birmingham Medical College, while in attendance upon the meeting of the International Press Club Association in this city recently.

PHYSICIANS ATTENTION.—Drug stores for sale on easy terms, etc., United States, Mexico, and Canada. Drug store positions. F. V. Kniest, Omaha, Nebraska.

The psychological depressions and neuralgias so common in the period following a debauch, are lessened or disappear altogether by the use of Celerina.

Dr. James S. McLester, 830 South Twentieth St., Birmingham, wishes to announce that he will be absent from his office for purposes of study October 1, 1907, to October 1, 1908.

Dr. B. D. Sibley announces that he has moved his office to the second floor of the First National Bank Building, rooms 227 and 228, where he will continue the practice of eye, ear, nose and throat work.

The older masters of venereology were very particular to keep their gonorrheal patients on demulcent drinks and a low diet, and accomplished much good by this course. The soothing demulcent effect of Sanmetto renders it an ideal remedy in gonorrhea.

Remember that the dripping of the urine in adult life usually denotes the over-flow of a distended bladder, possibly occasioned by muscular relaxation of bladder or the commencement of hypertrophy of the prostate. Sanmetto is the indicated remedy.

Book Notices.

A Manual of Orthopedic Surgery. By Augustus Thorndike, M. D., Assistant in Orthopedics at the Harvard Medical School; Visiting Surgeon to the House of The Good Samaritan; Assistant Orthopedic Surgeon to the Children's Hospital, Boston; Fellow of The American Medical Association, The American Orthopedic Association; The Massachusetts Medical Society, etc. With 191 illustrations. Philadelphia, P. Blakiston's Son & Co. 1907. \$2.50 net.

In this Manual Orthopedic Surgery is presented in a simple way for the student and practitioner. It is so arranged that the deformities which fall to the orthopedist are grouped both etiologically and chronologically. Part I comprises deformities originating before or during birth, malformations and fatal diseases: Part II, deformities caused by the influence of external forces acting upon the growth of the skeleton: Part III, the affections of bones and joints: Part IV, acquired diseases of the nervous and muscular systems with deformities: and Part V is a technical description of the use of plaster bandages and orthopedic apparatus. It is concise and well written, as would be expected, neatly bound, and will prove a valuable addition to any physicians library.

Diseases of the Nervous System. Edited by Archibald Church, M. D., Professor of Nervous and Mental Diseases and Medical Jurisprudence Northwestern University Medical Department, Chicago, Ill. An Authorized Translation from "Die Deutsche Klinik," under the general editorial supervision of Julius L. Salinger, M. D. With 195 illustrations in the Text and Five Colored Plates. New York and London, D. Appleton and Company. 1908. Cloth. \$7.00 net.

This is the fourth volume in Appleton's "Modern Clinical Medicine." The first volume in this series on "Infectious Diseases," edited by Dr. James C. Wilson, Philadelphia; the second on "Diseases of Metabolism and of the Blood, Animal Parasites, Toxicology," edited by Dr. Richard C. Cabot of Boston; and the third on "Diseases of the Digestive System," edited by Dr. Frank Billings of Chicago; are among

the best works on the respective subjects and have had a very favorable reception at the hands of the profession. This fourth volume in the series is a very interesting work. The articles on nervous disease, embraced within it supply most satisfactorily the inadequacy of the usual text-book descriptions of the various nervous diseases with which the practitioner comes in contact. It takes up these diseases with a completeness that is found in no other one-volume work published in this country. The subject making up the volume and their authors are as follows: Neuralgia, by Eichhorst; Paralysis Agitans and Tabes Dorsalis, by Erb; Headache and Migraine, by Edinger; Hemorrhage of the Brain and Embolism, by Geigel; Disturbances of Speech, by Gutzman; Sexual Neurasthenia and Basedow's Disease, by Eulenburg; Normal and Pathological Histology of the Central Nervous System, by Rosin; Anatomy of the Central Nervous System, by Rothban; Lumbar Puncture, by Quicke; Syringomyelia, New Formations of the Spinal Marrow and Progressive Muscular Atrophy, by Schultze; The Aphasic Symptom-Complexus, by Wernicke; Multiple Sclerosis, Spinal Paralysis and Diseases of the Brain, by Redlich; The Examination of Sufferers from Nervous Diseases, by Shuster; Athetosis and Thomseu's Disease and Tetany of Adults, by L. v. Franke-Hochwart; Vasomotor Trophic Neuroses and Occupation Neuroses, by Cassirer; Localized Spasm, by Remak; Myelitis, by E. v. Leyden; Hereditary Ataxia, by Luthje; Epilepsy, by Vorkastner; Hysteria, by Ziehen; and Diseases of the Peripheral Nerves, by Bernhardt.

Visiting and Pocket Reference Book (Perpetual). 1908. J. H. Chambers & Co., Publishers, St. Louis, Mo.

Revised and enlarged, handsomely vellum bound, lapel, pocket size. Price 50c. Condensed, at the same time sufficiently elaborate to give such information required in a book of this character. Convenient to carry in the pocket; contains 128 printed and blank pages. Synopsis of contents: Table of Signs, How to Keep Visiting List, Obstetrical Memoranda, Clinical Emergencies, Artificial Respiration, Poisons and Antidotes, Dose, Table, Important Incompatibles; Ruled printed pages for Weekly Visiting List, Memoranda, Nurses' Addresses, Clinical Record, Obstetric Record, Birth Record, Bills Rendered, Cash Received, Miscellaneous Memoranda, Death Record, Vaccination Record, Articles Loaned, Cash Loaned.

The publishers will mail copy post-paid on receipt of 24 2c. stamps.

Pamphlets Received.

Small Pox, Its prevention, restriction and suppression. Published by the Illinois State Board of Health. 1907.

Bulletin No. 141, Alabama Agricultural Experiment Station of the Alabama Polytechnic Institute, Auburn, "Texas or Tick Fever," by C. A. Cary.

Intestinal Perforation in Typhoid Fever; Its diagnosis and surgical treatment. J. E. Allaben, M. D., Surgeon to St. Anthony Hospital, Rockford, Ill.

Second Annual Report of the American Oucologic Hospital for the treatment of cancer and other tumors, Philadelphia, Pa., for the year ending Dec. 31, 1906.

Modes of Statement of Cause of Death and Duration of Illness Upon Certificates of Death. Comparison of forms now in use in the United States and certain other countries and suggestion of a modification of the standard certificate of death in order to secure uniform and definite statements of causes of death, etc. Bureau of Census, S. N. D. North, Director, Department of Commerce and Labor.

Miscellaneous Notes.

THE TREATMENT OF ALCOHOLISM.

The treatment of alcoholism often requires the use of vigorous tonics, and none will give more satisfactory or prompt results than Gray's Glycerine Tonic Comp.

SEXUAL NEURASTHENIA.

This distressing and frequently intractable malady is logically and successfully treated by the administration of Gray's Glycerine Tonic Comp. It does not act by temporary stimulation of weakened functions, but produces permanent benefit by its influence on the whole bodily nutrition. The nervous system is restored to a normal equilibrium and morbid fears are dissipated.

CLIMATIC EFFECTS.

The winter weather is at hand and it is well known to what extent the cold will aggravate many female troubles. Physicians have used many preparations without having found one of them which gave satisfaction. Physicians trying Tyree's Antiseptic Powder will be satisfied that they have at last secured just the preparation they desired. Tyree's Antiseptic Powder can be used freely in any strength, at any time, and in any case. It is superior and preferable to the mercuric bichloride solution, because it is devoid of any element of danger. Its solubility is greater than that of bichloride of mercury tablets, and it does not erode delicate mucous membrane. The observant doctor will find that it makes a solution that may be thoroughly depended upon as a responsible and reliable antiseptic healing agent. It is scrupulously made, and its well balanced chemical adjustment has established its medical popularity. A trial package will be mailed free of charge to physicians if they will send their name and address to Mr. J. S. Tyree, Chemist, Washington, D. C.

CYSTOGEN-LITHIA TABLETS.

This effervescent tablet is of interest to physicians as it affords the means of employing the uric acid solvent and genito-urinary antiseptic properties of Cystogen, augmented by the alkaline and solvent action of the lithia salt.

The value possessed by the salts of lithia as uric acid solvent, diuretic and ant-acid are available in this preparation. It is a most happy combination, displaying all of the desirable effects of both Cystogen and Lithia. The effervescence brings about a quick solution in water, producing a perfectly tasteless solution. Water that is too cold retards the effervescence. It may therefore be conveniently taken at meal time in a full glass of water. In cases where this method of administration is contra-indicated, it may be taken between meals, always dissolved in considerable water.

These tablets being effervescent, need to be protected from atmospheric conditions, and for this reason are packed in glass tubes containing one dozen tablets in each. Three tubes are packed in a small cardboard box. A tube may be conveniently carried in the vest pocket, so that patients may be expected to take the medicine with regularity.

Middle Granville, N. Y., Oct. 31, 1906.

The Anasarcin Chemical Co.

Winchester, Tenn.

It is with pleasure that I am enabled to state that my case of goitre with valvular disease of heart was permanently benefited by the samples you so kindly sent.

Very truly,

Dr. J. A. Morris.

Altona, Manitoba, Aug. 3, 1906.

The Anasarcin Chemical Co.

Winchester, Tenn.

I have been using your preparation "Anasarcin Tablets" during the last four year. With this drug I have treated cases of dropsy caused by heart, renal and hepatic diseases, and I do not hesitate to declare that in my opinion, no matter what is the cause of dropsy, Anasarcin, if properly used, will produce results which cause great satisfaction to patients and to doctors as well.

Yours truly,

Dr. A. Deschambault.

Stephentown, N. G.

The Anasarcin Chemical Co.

Winchester, Tenn.

Gentlemen: In reply to yours of the 25th inst. will say the sample package of Anasarcin tablets was received. I gave them in a case of cirrhosis of the liver with ascites in which I had tried the usual remedies without any apparent effect. I had decided to tap the patient when my attention was called to your remedy, and although very skeptical about its being of any benefit, I gave it a trial. It "worked like a charm;" entirely relieved the ascites and a month has now elapsed and there has been no return of the trouble.

In the future I shall use your remedy in all cases of dropsy for now I have great faith in it.

Thanking you for the sample I am,

Yours truly,

C. A. Chaloner.

THE VALUE OF CODEINE.

The *Cleveland Medical Journal* quoting from the *Denver Medical Times*, concerning codeine, states, that, according to Butler, "it is less depressing and more stimulating than morphine, does not constipate, cause headache or nausea, and rarely leads to the formation of a habit. Codeine seems to exert a special, selective, sedative power over the pneumogastric nerve, hence its value in irritative laryngeal, pharyngeal and phthisical coughs with scanty secretion. Like morphine it has proved of value in checking the progress of saccharine diabetes, and it has been used for long periods, without the formation of the drug habit, inasmuch as when glycosuria was brought to a termination by dietary and other measures, the cessation of the use of codeine was not followed by any special distress. The effects of codeine on the alimentary canal are remarkable, in that it assuages pain as well or better than morphine and nevertheless does not check the secretions or peristalsis notably, unless the latter is excessive, as in dysentery." In view of these facts it would seem that Antikamnia & Codeine Tablets are a remedy which should find a wide field. Prof. Schwarze (*Therapeutische Monatshefte*) in writing upon the treatment of the different forms of dysmenorrhoea, and the different forms of congenital deformity of the uterus, states that the coal-tar analgesics are of much use, as well as the preparations of iron and sodium salicylate. In many cases it is necessary to administer codeine in small doses, and the tablets of "Antikamnia & Codeine" would seem to have been especially prepared in their proportions, for just these indications.

THE CHEMICAL ANALYSIS AND PHYSIOLOGIC EXPERIMENTS ON "MEATOX," THE NEW FOOD PRODUCT.

By I. V. S. Stanislaus, B. Sc.; Pharm. D.

Medico-Chirurgical College of Philadelphia, Department of Pharmacy,
Dean's Office.

August 23, 1907.

Editor Medical Bulletin, Philadelphia.

Dear Sir:—Enclosed please find the report of the Chemical Analysis made by me and of physiologic experiments conducted by me upon "Meatox," a food product recently introduced by Mr. Charles Marchand, the well-known New York chemist.

"Meatox," as will be seen from below given findings, is in a class by itself. It can hardly be called a "meat extract" in the ordinary sense of the word, as it represents *more food-value* than any of these. The findings given below speak for themselves.

Very respectfully,

I. V. S. Stanislaus.

Philadelphia, Pa., March 28, 1907.

ANALYSIS OF MEATOX.

Upon analysis of a sample of Meatox it was found to be composed of the following ingredients and proportions:

Moisture	4.80
Celery Flavoring (residue from alcohol extract)	2.21
Sodium Chlorid	4.56
Proteid Matter	73.54
Insoluble Matter	9.43
Total	94.54
Ash	4.96
	99.50
Loss	.50
	100.00

Submitting the inclosed analysis I take pleasure in stating that basing it on the protein content this is the most wonderful exponent of the modern nutrients extant. It is practically five times the meat value as a food, and as such will command the attention of every physiologist and hygienist interested in food products.

PHYSIOLOGICAL EXPERIMENTS ON MEATOX.

Philadelphia, June 29, 1907.

Meatox is a pale yellow, granular powder, having the odor and taste of celery, with which it is flavored.

Its composition, according to my analysis of March 28, 1907, is as follows: 73.54 per cent. of proteids, 4.5 per cent. of salts, and 12 per cent. of fats.

It does not dissolve in cold water, but imparts to the water an opaque

color. When applied in a solution to the frog's heart it increases the rapidity of the beat for a short time, then makes the beat stronger.

The effect on blood-pressure in the human subject was noted. A man was fed on Meatox, bread and butter, water, a little hot tea, without milk, and fruits and berries with a little sugar for ten days. Blood-pressure was estimated with a Rivi-Rocci sphygmomanometer, the systolic pressure being only recorded. Before starting in on the Meatox diet, the radial systolic pressure was 115 millimeters of mercury, while at the close of the diet the radial systolic pressure was 118 millimeters of mercury.

The effect of Meatox was tried on intestinal peristalsis. The effect was studied after the method of Professor Magnus, of Heidelberg. A piece of the small intestines of about 10 centimeters in length was taken from a rabbit. This was placed vertically in a glass containing about 225 cubic centimeters of a modified Ringer fluid kept to the temperature of 37.5° C. One end of the intestine was attached to an L-shaped glass rod by means of an S-shaped pin hook, and the other end to a Porter's heart lever slightly weighted.

Oxygen was allowed to pass through the solution all the time. Before the Meatox was added contractions were recorded, to get about as near normal contractions as possible. About 2 decigrams of Meatox were then added, and it was noted that the tonus of the contractions increased but the frequency remained about the same. When larger doses of Meatox were added to the intestine the frequency became a little slower, but the tonus and force of contractions increased quite markedly.

The effect on voluntary muscles was studied by soaking the gastrocnemius muscle of a frog in a watery solution of Meatox. The muscles were allowed to soak in this for various lengths of time, ten or fifteen minutes being the usual periods.

The recording of the effect of a maximal break electric shock was noted on a smoked drum by means of a Porter's muscle lever and moist chamber. The muscles contracted very rapidly. Both the systole and diastole were very rapid, and when a strong tetanizing current was added it was noticed that the contractions became stronger after the current was on for a few seconds. Return to the normal was gradual. From this it appears to assist in muscular contraction.

The above deductions convince that Meatox as a concentrated food is

an easily digested, assimilated, and sustaining condiment. It is the first in the field of foods as a true, highly-organized proteid food. Acknowledgment is here made of the valuable assistance rendered by Joseph F. Ulman, M. D.—*Med. Bulletin*.

RESOLUTIONS BY AMERICAN PHARMACEUTICAL ASSOCIATION.

Baltimore, October, 1907.

Dear Sir:—At the recent annual meeting of the American Pharmaceutical Association the undersigned was directed to send you a copy of the following resolutions:

Whereas, The American Medical Association, the American Pharmaceutical Association and the National Association of Retail druggists together with many State and local organizations and journals in both professions have been for some years endeavoring to bring about a return to the practice of medicine based on the Pharmacopoeia, and

Whereas, The medical colleges are represented on the Committee of Revision of the U. S. Pharmacopoeia, and

Whereas, It is manifest to the thoughtful men both in medicine and pharmacy that a very large number of medical men might be better informed regarding the Pharmacopoeia as a book of reference and standards. Be it therefore

Resolved, That it is the sense of the American Pharmaceutical Association in convention assembled, that a great advance in the ethical practice of medicine and pharmacy will be made when the medical colleges make the Pharmacopoeia a prescribed text-book or book of reference and require a familiarity with it in their examinations.

Resolved, That we request the governing authorities of all medical colleges in the United States to put into force such a ruling in their respective institutions as will insure in future classes a well grounded knowledge of materia medica and Pharmacognosy as set forth in the Pharmacopoeia.

Resolved, That the General Secretary be directed to transmit a copy of these resolutions to each medical college in the United States and to the medical and pharmaceutical press.

Yours very truly,

Chas. Caspari, Jr., General Secretary,

THE OPERATIVE TREATMENT OF FRACTURES INVOLVING
THE ELBOW JOINT.

Carleton P. Flint, New York, says that in injuries of the elbow joint open operation is not always indicated even when there is deformity and interference with function. In children especially waiting is the best policy. Still in many cases operation is advisable, that the fragments of bone may be wired into place or fixed by chromicized gut. The author goes into a careful discussion of the best procedure to be undertaken in each variety of injury to the elbow joint. The author operates only in cases in which there can be no doubt about the advisability of such procedure.—*Medical Record*, September 21, 1907.

The Washington State Medical Society elected these officers at its eighteenth annual convention recently, when it was decided to meet at Walla Walla, southwest of Spokane, in 1908 and at Seattle 1909: President, Dr. C. N. Suttner, Walla Walla; vice-president, Dr. W. H. Axtell, Bellingham; second vice-president, Dr. R. T. Black, Vancouver, Wash.; secretary, Dr. C. H. Thompson, Seattle; treasurer, Dr. L. L. Love, Tacoma; delegate to the American Medical Association, Dr. J. R. Yocum, Tacoma; alternate, Dr. J. G. Cunningham, Spokane. The judicial committee was instructed to take some action relative to the closer cementing of state and county legal and medical societies, as it is desired to bring those two professions closer together for the common good.

OBESITY, GOUT, AND DIABETES MELLITUS CONSIDERED
AS DISEASES OF CELL METABOLISM TRANSMISSIBLE
BY INHERITANCE.

Wilhelm Ebstein of Gottingen, places obesity, gout, and diabetes mellitus in one group, that of hereditary diseases of cell metabolism. The close relation of the three diseases is evident, and the frequent occurrence of all in the same subject. All are traced to a certain deficiency in cell activity. The victim of obesity is unable to consume the fatty acids that result from metabolism in the same degree as a normal individual. The cause of gout is to be sought for in a disturbance of the intermediary stage of metabolism, especially that of the nucleins, growing out of inherited tendency. Diabetes shows a deficiency of carbonic acid excretion, the property of this gas to inhibit the action of

diastatic enzymes making it a regulator of the formation of sugar from the glycogen stored up in the body. The sugar is more or less completely excreted before it can be assimilated by the organism. These diseases are seen to result from a primary defect of the cells and each one may be traced to a change in the biogens different in localization and character.—*Medical Record*, September 28, 1907.

ON FLATULENCE AND ITS TREATMENT.

Max Einhorn of New York, says that flatulence may be associated with the stomach alone, or with the intestine. When primary it is not caused by fermentation, but by swallowing of air. The sphincter muscles of the digestive canal are principally affected. It may exist for a long time without serious consequences. In acute and chronic gastric catarrh there is a real increase in the amount of gas in the stomach and a lessened absorption of it. Flatulence can be lessened by distracting the attention of the patient from his own sensations. When it is secondary it results from cardiac, circulatory, or respiratory diseases, and the relief by belching is rather imaginary than real. In primary flatulence treatment consists in the effort not to belch, with a simple diet and avoidance of beverages and foods that produce gas.—*Medical Record*, September 14, 1907.

The constitutionality of the Washington state medical practice act has been upheld by the United States supreme court in the case of the state of Washington against O. W. Lawson, manager of the State Medical Institute, charged with practicing medicine without a license. Lawson appealed from the supreme court of the state and the appeal was dismissed. As a result of the action of the United States supreme court Lawson will have to go to the county jail and serve the remainder of a 90-day sentence. He was at liberty on bonds pending the action of the U. S. supreme court. Lawson was convicted in the trial court and sentenced to pay a fine of \$100 and serve 90 days in the county jail. Lawson was arrested at the instance of the King County Medical Society, the case being the first of its kind to go before the highest tribunal in the state.

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